

**Chinese American Adolescents' Self-Perceived Identities
and Their Language Behaviors**

by

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Abstract

The purpose of this study was to determine the relationships between self-perceived identities of Chinese American adolescents and their language behaviors. The self-perceived identities were measured by the Chinese American Self-Perceived Identity Scale (CASPIC) by Linxiang Zhu (2009) and language behaviors were measured by the Chinese American Adolescents' Language Behavior Scale (CAALBS) by Linxiang Zhu (2009).

The items in the CASPIC were designed to assess to what extent does context and age affect the self-perceived identities of Chinese American adolescents, thereby providing a profile of that Chinese American adolescent's self-perceived identities and illustrating the impacts of context and age on these identities. The CAALBS was designed to measure Chinese American adolescents' language behaviors in different language environments.

Two hundred and fifty-seven Chinese American children and adolescents completed the survey questionnaires. Two hundred and twenty-four were selected for this study. Structural Equation Modeling was used to test and validate the CAALBS instrument. Hierarchical regression analysis identified several predictors of Chinese heritage language behaviors, such as immediate family speaking language, extended family speaking language, peer speaking language, Chinese teacher speaking language, age, age of arrival, gender, and self-perceived identity.

There is a great need for empirical studies that address fundamental theory-building questions regarding HL learner characteristics, HL-associated individual and contextual factors,

and the effect of home background on HL learning. This study, an examination of the linkage between self-perceived identities of Chinese heritage language (CHL) learners and their language behaviors, extends that literature for the fundamental CHL theory building.

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CHAPTER I. INTRODUCTION

The United States is an immigrant country with more than 1 million new immigrants each year. Currently, out of 1000 Americans 115 are immigrants. The ratio is expected to increase to 140 per 1000 by 2030 (Schmidley, 2003). The majority of immigrants are from non-European nations. Approximately 50% of immigrants are from Latin America and 26% are from Asia. According to the 2000 Census, Chinese American is the largest Asian group with a population of 2.7 million (U.S. Census Bureau, 2002).

Immigrants today are likely to come from cultures that differ significantly from American mainstream culture. The mainstream U.S. culture values independence and individual uniqueness, while Latin and Asian cultures emphasize interdependence and interpersonal harmony (Ho, 1993; Sandoval & De La Roze, 1986). When immigrant parents continue to espouse their culture of origin and minimally adopt mainstream U.S. values while their children embrace mainstream cultural attitudes and behaviors, intergenerational-intercultural conflicts arise (Sluzki, 1979). "Intergenerational or intercultural conflict may be a risk factor for psychological distress in both immigrant parents and their children (Adler, Ovando, & Hocevar, 1984; Ying, 1999, 2004). It is not only immigrant parents, however, who are beginning to value their cultures and languages of origin.

Heritage culture, especially heritage language knowledge, has recently come to be widely regarded as an immensely valuable resource for the individual as well as for society (He, 2006;

Krashen, Tse, & McQuillan, 1998; Peyton et al. 2001; Wong-Fillmore, 1991; Yan, 2003). Recent research indicated that HL development could lead to academic and economic benefits, be an important part of identity formation, and enable the HL speaker to benefit from deeper contact with family, community, and the country of origin (He, 2006; Peyton, Ranard, & McGinnis, 2001; Wong-Fillmore, 1991).

Traditionally, Chinese American parents and communities have had high expectations of their children's Chinese language proficiency and have tried to maintain their heritage language and culture. Since the nineteenth century, they have gone to a great effort to help younger generations learn Chinese by establishing community-based Chinese schools in different social and historic contexts (Lai, 2001; Chang, 2003). With newly arrived Chinese immigrants from mainland China, Taiwan, Hong Kong, and southeastern Asia, the enrollment of community-based Chinese language schools reached to approximately 200,000 in 2010 (CSAUS, 2010; NCACLS, 2010). However, studies show that the outcome of helping Chinese American children maintain or develop their heritage language (HL) is not satisfactory (Fishman, 1991; Hinton, 1999; Krashen, 1996; Lai, 2001; Liu, 2006; Portes & Hao, 1998; Tse, 2001; Wong-Fillmore, 1991). As a result of exposure to American mainstream culture through public education, Chinese American children strive to assimilate to their American peers. They fail to see the relevance of HL learning in their lives and often resist parents' efforts in HL maintenance (Zhang, 2009). Many CHL learners drop out of their community-based Chinese language schools when they reach fourth or fifth grade, the critical age when their ethnic and racial attitudes among children appear to crystallize. Many CHL learners who continue to go to their Chinese language class resent this arrangement of their parents since their American friends were

free to play during the weekend. Therefore, heritage language classes constitute a source of intergenerational-intercultural conflicts within their families.

Although these intergenerational-intercultural conflicts are common among Chinese American communities, it has rarely been a concern of CHL education researchers. The focus of previous research has been on factors contributing to the poor outcome of CHL learning such as weak school leadership, inadequately prepared teachers, inappropriate teaching materials, and negative attitude of parents toward Mandarin Chinese (Li, 2005; Ma, 1996). School-age CHL education, with its heterogeneity and the complexity among its speakers and dialects, has been understudied (He, 2008).

To understand the CHL development trajectories, He (2006) examined how HL learning takes place as the learner moves across time and space based on the characteristics of the CHL learner and drawing insights from language socialization, second language acquisition, and conversation analysis. He posited that CHL development takes place in a three-dimensional framework with intersecting planes of time, space, and identity. Temporally, CHL development recontextualizes the past, transforms the present and precontextualizes the future. Spacially, it transforms local, independent communities into global, interdependent communities. In terms of identity, learner's CHL development depends on the degree to which s/he is able to develop hybrid, situated identities and stances. However, He's theory has never been fully examined with empirical data.

Statement of Problem

Research on HL learning or acquisition is still in its infancy and has not yet found a place in language acquisition theories (Lynch, 2003). There is no coherent HL theory to guide research and pedagogical practice. There is a great need for empirical studies that address

fundamental theory-building questions regarding HL learner characteristics, HL-associated individual and contextual factors, the effect of home background on HL learning, and the developmental path of HL acquisition. Given the size, population, and complexity of CHL instruction at the community level, more empirical research needs to be conducted that focuses on the school-age CHL learner's language behavior and identity change over time.

Research Questions

The purpose of this study was to explore Chinese-as-a-heritage-language learners' perceptions of their ethnicity and the relationships between their self-perceived ethnicity and language behaviors using the theoretical framework of Giles. There were three primary research questions: 1) To what extent do context and age affect the self-perceived identities of Chinese American adolescents; 2) What are Chinese American children's language behaviors in different language environments; and 3) What are the relationships between Chinese American children's self-perceived ethnicity and their language behavior in their immediate family, extended family, Chinese language school, and with their peers.

To address the above research questions, the researcher examined the variables identified in previous research, including age of arrival, gender, first language (L1), second language (L2), generation status, years in the U. S., mother's education, father's education, origin, self-identified identity, language behaviors at immediate family, language behaviors at extended family, language behaviors at Chinese school, and language behaviors with peers.

Assumptions of the Study

The present study is based on the following assumptions:

- The selected CSAUS Chinese weekend school is representative of other CSAUS Chinese weekend schools in US;

- Participants provided accurate information about their self-perceived identities and their language behaviors;
- Findings may be generalized to Chinese American adolescents with similar experiences who go to CSAUS Chinese schools outside the geographic region targeted by this study.

Limitations of the Study

This study was limited by the following conditions:

- The data of the participants' language behaviors were self-reported;
- The variables included in the instrument are not all inclusive of the many variables influential to determining language behaviors;
- Data collection was limited to paper and pencil form at the selected Chinese weekend school; therefore, participants may have entered more acceptable responses than actual true responses.
- The results of this study may not apply to Chinese American adolescents who do not go to a CSAUS Chinese weekend school in the US.

Definition of Terms

CHINESE WEEKEND LANGUAGE SCHOOL: In this study, Chinese weekend language school is defined as Chinese language schools which operate on Saturday or Sunday. It usually provides a two-hour language class per week for its students.

CHINESE AMERICAN ADOLESCENTS: In this study, a Chinese American adolescent is defined as Chinese weekend language school student age from 9 to 16. He or she might be American born or foreign born to a parent of Chinese origination.

IMMEDIATE FAMILY: In this study, immediate family is defined as a family that includes parents and siblings.

EXTENDED FAMILY: In this study, extended family is defined as a family that includes grandparents and grandchildren.

PEER: In this study, peer is defined as a peer at a Chinese language school, including best friends and other friends.

TEACHER: In this study, teacher is defined as a classroom Chinese language teacher.

Overview of the Study

This chapter describes the problems concerning Chinese American heritage language learners' self-perceived cultural identity and their CHL learning. The rest of this dissertation is organized as follows: Chapter 2 discusses the relevant studies about Chinese as heritage language learning and teaching in the United States, Tajfel's social identity theory, Giles' accommodation theory, He's identity theory of CHL development, and HL research studies. Chapter 3 presents the methodology of this study, including the description of participants, and survey instruments used to collect and analyze data. Chapter 4 reports on the results from the data analysis to answer the three research questions. The dissertation concludes with Chapter 5, which interprets the results from chapter 4 and discusses the contributions, implications and limitations.

CHAPTER II. REVIEW OF LITERATURE

This chapter provides a synthesis of the related literature upon which the theoretical framework for this study is based. The review of the literature consists of six sections. The first section addresses the heterogeneity and complexity of Chinese heritage language education, while the second section surveys the history of Chinese heritage language schools in the United States to illustrate the historic context of current Chinese heritage language (CHL) education and research. The third section examines the previous research on heritage language learning and introduces identified factors contributing to the outcome of CHL education. The fourth section discusses the theories relevant to heritage language acquisition. The fifth section describes a CHL developmental path different from either first language acquisition or second language acquisition. Finally, the conclusion summarizes the literature review and sets the stage for the present study.

The Heterogeneity and Complexity of Chinese Heritage Language Education

Currently, over 1.4 billion people speak some form of Chinese as their native language. These native speakers usually treat the internal divisions of Chinese as dialects of a single Chinese language. “Chinese,” however, is perceived as an umbrella term of hundreds of dialects grouped under seven to thirteen broad categories by some linguists and Sinologists. The seven categories include Mandarin (approximately 850 million), Wu (90 million), Cantonese (80 million), Min (50 million), Xiang (35 million), Hakka (35 million), and Gan (20) million. Most of these groups are mutually unintelligible, similar to differences among French, German, and

Spanish. As a result, Chinese is classified as a macrolanguage with 13 sub-languages by the International Organization for Standardization (ISO 639-3). The standardized form of spoken Chinese is Standard Mandarin (Putonghua in mainland China, Guoyu in Taiwan, and Huayu in Singapore). Mandarin is based on the Beijing dialect, which is part of a larger group of North-eastern dialects and South-Western dialects. According to He (2006), however, even Mandarin Chinese is not a monolithic entity. For example, Mandarin used in mainland China and Taiwan varies in terms of lexicon, phonetics, and discourse norms, similar to differences between British and American English.

There are two variants in the Chinese writing system. These are the traditional script (TS) and the simplified script (SS). The simplified script is officially used in mainland China and Singapore, and the traditional script is mainly used in other Chinese-speaking regions (Norman 1988, Chen 1999). In practice, one or both writing forms might be taught in Chinese heritage language classrooms. Table 1 illustrates the variety of CHL learning based on the summarization of He (2008).

Table 1

Home Literacy, Classroom Script, and Mandarin Intelligible or Unintelligible Home Dialect

CHL Learners

	Home Literacy	Classroom Script
Mandarin Intelligible	TS	TS
		SS
	SS	SS
		TS
	No home literacy	TS/SS
Mandarin Intelligible	TS	TS
		SS
	SS	SS
		TS
	No home literacy	TS/SS

History of the Chinese Heritage Language Schools in the USA

Since the nineteenth century, Chinese American communities and parents have gone to great efforts to help younger generations learn Chinese by establishing community-based Chinese schools (CCS) in different social and historic contexts. Chinese language schools in the United States have existed for nearly one-and-a half centuries. In the 1870s, Chinese Americans with a Cantonese background founded the first community-based Cantonese schools. According to Lai (2001), between 1887 and 1945, more than 75 Chinese schools were founded or opened on the mainland of the United States. Among them, approximately 80% were started during the

years of the Chinese Republic (1912 to 1949). From the 1880s to the first quarter of the twentieth century, racial discrimination against the Chinese was virulent in America. During this period, many Chinese Americans considered seeking careers in China. Chinese schools inculcated knowledge of Chinese language and culture so that students could either function in a Chinese environment or continue their education in China. However, it was the Chinese American parents who preferred to send their children to Chinese schools. The younger generation had demonstrated an increasing acculturation to American society by World War II (Chang, 2003; Lai, 2001).

As Lai (2001) points out, “World War II was a great divide in the development of the Chinese in America, and for Chinese-language schools as well.” Before World War II, Chinese Americans sent their children to Chinese language school so that they could return to China to escape the pervasive racial discrimination. After World War II, however, their motivation for sending their children to Chinese school changed. In 1943, Congress repealed the Chinese Exclusion Acts. According to the new law, Chinese immigrants were given the right to become naturalized. During the postwar years, Chinese Americans accelerated their entry into the American mainstream by working in skilled and technical occupations formerly closed to them. As their status in America improved, their attitudes toward the United States and their ancestral land underwent a notable change, as did their thinking about the rationale and the necessity for their children to acquire Chinese language and culture (Lai, 2001). It was true that parents, particularly immigrant parents, still preferred their children to acquire the rudiments of Chinese language and culture; this knowledge, however, was no longer considered a necessary skill to survive in America. The English language became the primary medium of communication of the younger generation growing up in the United States.

Meanwhile, new opportunities accelerated the trend of Chinese Americans living away from Chinatown and the metropolis. This change of the structure of community geography, as well as the attitude toward the Chinese language, gave impetus to weekend Chinese language schools in America. Previously, the majority of Chinese language schools opened daily from Monday to Saturday, with a study load of 17 to 19 hours per week. Some communities had tried weekend classes in the 1930s before World War II, but the concept of weekend Chinese classes did not become popular until the 1960s, when Chinese families started to move to suburban areas. By the mid-1990s, approximately 85% of Chinese schools were offering weekend sessions. These schools usually offer two to three hours of instruction. The transformation from daily school to weekend school had a great effect on the level of Chinese proficiency that the student attained as well as on the pedagogy of teaching Chinese as a heritage language.

During the postwar period, domestic and international developments not only led Chinese in the United States to choose America as their home, but also made it possible for Chinese elsewhere to immigrate to America. Starting in the late 1940s, the population of Mandarin-speaking Chinese began to grow in America. The liberalization of US immigration laws in 1965 accelerated this trend. Chinese people came from Taiwan, Hong Kong, Macao, different regions of mainland China, Southeast Asia, and other countries. This continued influx of new immigrants not only led to a rapid increase in the population, but also changed the demographics of the Chinese community dramatically. In the late 1960s and early 1970s, Mandarin gradually took the place of Cantonese as the predominant language of instruction to meet the needs of Mandarin-speaking newcomers. Mandarin became the predominant language of instruction by the 1980s. By the mid-1990s, approximately 80% of students in the Chinese schools were being taught in Mandarin. For example, at the Institute of Chinese Culture, the only Chinese language

school in Houston in 1970, there were four classes taught in Cantonese and one in Mandarin; in 2000, Mandarin became the language of instruction in all its 17 classes and grades (Lai, 2001).

The diversity of a newly arrived immigrant population created new challenges for Chinese American language schools. Immigrants from Taiwan favor teaching traditional characters and using Zhuyin Fuhao/phonetic symbols. However, immigrants from mainland China advocate simplified characters and Hanyu Pinyin, the most commonly used Romanization system for Standard Mandarin. “Hanyu” means the Chinese language, and Pinyin means “phonetics.” In the 1990s, representatives from each group organized to promote their ideas. The National Council of Associations of Chinese Language Schools (NCACLS) established in 1994 includes member schools across 47 states with approximately 100,000 students (NCACLS, 2010). NCACLS schools have developed a close relationship with Taiwan. They are loyal supporters of traditional Chinese characters. Differing from NCACLS member schools, the Chinese School Association in the United States (CSAUS) promotes simplified Mandarin Chinese. It has 413 member schools with over 100,000 students and 7,000 teachers across 43 states (CSAUS, 2010). Meanwhile simplified characters and Hanyu Pinyin are also taught in most Chinese language programs in American high schools and universities.

Factors Contributing to the Outcome of CHL Education

Although Chinese as a heritage language (CHL) is being taught to an increasing number of students at all levels throughout the United States, CHL education has been understudied with its heterogeneity and complexity in its speakers and dialects (He, 2008). Existing literature has documented the unsatisfactory outcome of helping Chinese American children to maintain or develop their heritage language (Dai & Zhang, 2008; Fishman, 1991; Hinton, 1999; Krashen, 1996; Koda, Zhang, & Yang, 2008; Lai, 2001; Liu, 2006; Portes & Hao, 1998; Tse, 2001; Wong-

Fillmore, 1991; Xiao, 2008). Researchers have argued that weak school leadership, inadequately prepared teachers, inappropriate teaching materials, out-of-date traditional teaching practices, and negative attitude of parents toward Mandarin Chinese contribute to the poor outcome of heritage language learning (Koda, Lü, & Zhang, 2008; Li, 2005; Ma, 1996). Some studies also suggested that Chinese immigrant children dislike attending CCS and do not feel they have benefited from it (Dai & Zhang, 2008; Hinton, 1999; Liu, 2006). For example, students were often unwilling to give Chinese school teachers the same respect they gave teachers in the English-language schools, and they began dropping out of Chinese language school once they reached the fourth or fifth year level (Liu, 2006).

Existing literature has identified many factors which influence the development as well as the maintenance of Chinese American heritage language, including gender, age, origin, socioeconomic status (SES), generation, years-in-US, Mandarin proficiency, English proficiency, peers, home language environment, school language environment, first language, and self-perceived identity (Giles & Ogay, 2006; Suinn, Richard-Figueroa, & Vigil, 1987). Few studies, however, have focused on school-age CHL learners, especially how they perceive and construct their identity and what impact questions of identity may have on CHL development and maintenance (He, 2008). Among those studies that have focused on CHL students, the majority of them collected data from universities and colleges, although there is considerably more CHL instruction going on at the school-age level (Dai & Zhang, 2008; Hendryx, 2008; Lu & Li, 2008; McGinnis, 2005; Wiley, Klerk, Li, Liu, Teng, & Yang, 2008; Xiao, 2008).

Considering the size, vitality, and growth of this learner population, research on teaching Chinese as a heritage language (CHL) in community-based Chinese schools (CCS) is needed. Researchers would need to closely examine CHL students' linguistic histories, profiles, needs,

diverse language learning and socialization processes and outcomes (He, 2006; Li, 2005). More important, a coherent theory of HL acquisition is needed to guide the future research in this newly emerging field.

Theories of Heritage Language Acquisition

The social identity theory (Tajfel, 1981; Tajfel & Turner, 1986), speech accommodation theory (Giles & Ogay, 2006), the concept of speech community (Labov, 1977), and HL learner identity theories (He, 2008) provide useful theoretical frameworks to understand the relationships among language, ethnicity, and intergroup relationships of Chinese American adolescents. The work of Tajfel, Giles, He, and Labov influenced and complemented each other in guiding the current study of self-perceived identity and language behaviors.

Social Identity Theory

Tajfel's systematic research in sociolinguistics provides a theoretical framework to understand the language shift in Chinese American immigrant communities. According to Tajfel's social identity theory, which is also referred to as intergroup relations and social change theory, members of subordinate groups whose social identity is inadequate will desire change in an attempt to attain a more adequate and positive social identity (Tajfel, 1974). For example, the second generation of a Mexican American community will prefer the use of English to attain a Mexican American identity, a more adequate and positive social identity. As a result, the younger generation's competence in Spanish might be fairly low in most established Mexican American communities. The second generation speakers see themselves as Mexican American and use code-switching to index their complex identities.

Speech Accommodation Theory

Based on Tajfel's social identity theory, Giles developed a speech accommodation theory (SAT) to explore the relationships among language, ethnicity, and intergroup relationships (Giles & Coupland, 1991). The discussions have centered on topics including second language acquisition, heritage language maintenance, and heritage language literacy. SAT explains some of the cognitive reasons for code-switching. When speakers seek approval in a social situation, they are likely to adopt convergent speech, matching that of their interlocutor, including but not limited to the language of choice and accent. To emphasize the social differences between themselves and their interlocutors, speakers may also engage in divergent speech by using linguistic characteristics of their own group. Giles's body of work provides the appropriate conceptual framework to locate the language and identity of an individual or a group in a specific socio-economic context (Giles & Coupland, 1991). Concepts such as convergence, divergence, social categorization, comparison, and cognitive alternatives, allow researchers to analyze the complicated acculturation process of Chinese American adolescents.

The speech accommodation theory consists of four essential components: a) sociohistorical context; b) communicators' accommodative orientation; c) the immediate situation; and d) evaluation and future intentions. The sociohistorical context represents the basis for any intercultural communication. As a result, the two interacting-group relations influence the behaviors of the communicators. For example, three factors that influence any intercultural communication between two ethnic groups include economic, political, and historical relations between them. The sociohistoric context might have a greater impact on language behaviors of immigrant parents compared to immigrant adolescents. In the current study, the researcher included several sociohistoric context factors, including origin, socio-

economic status, and age of arrival. The accommodative orientation is influenced by three factors, including intrapersonal factors, intergroup factors, and initial orientations. For example, the personality of the speaker is an intrapersonal factor; the speaker's feeling toward the outgroup is an intergroup factor; and perceived potential for conflict is an initial orientation factor. Five aspects that shape the immediate situation are sociopsychological states, goals and addressee focus (e.g. motivations and goals for the encounter), sociolinguistic strategies (e.g. convergence or divergence), behavior and tactics (e.g. topic and accent), and labeling and attributions. Evaluation deals with how communicators perceive their conversational partners' behavior and its effects on future encounters. Conversations rated positively would most likely lead to further communication (Giles & Coupland, 1991).

In *Towards a Theory of Language in Ethnic Relations*, Giles, Bourhis, and Taylor (1977) provided researchers a comprehensive map to connect language and contextual factors which influence the vitality of an ethnolinguistic group in intergroup situations. Giles, Bourhis, and Taylor proposed that three types of important factors determine the vitality of an ethnolinguistic group, including status factors, demographic factors, and institutional supportive factors. They identified major variables for each type of factor. Specifically, there are four status factors: economic status, social status, sociohistorical status, and language status. Giles and his colleagues also found eight demographic factors and six institutional supportive factors (Giles, Bourhis, & Taylor, 1977). In short, the authors provided researchers an illustration of the factors which shape the language of a group. This helps researchers categorize the numerous contexts which influence the speaker's choices.

Giles, Bourhis, and Taylor (1977) also provided a way of conceptualizing language. A traditional way of conceptualizing language is to treat it as an object, a thing, and a tool. It is

static and unchangeable. Based on this view, researchers developed survey items to collect information about the overall language preference and behaviors of an individual. However, Giles, Bourhis, and Taylor conceptualized language as a process during which an individual draws on his thoughts, symbolic representations, and emotions. This conceptualization requires researchers to include attitude and emotion related variables in order to understand the language behaviors of a particular group. This perspective not only allows researchers to treat English letters and Chinese characters as symbols, but it also allows researchers to treat a sentence of English as a piece of thought or attitude. When bilingual speakers go back and forth between two languages which symbolize two different cultures, they create a new language which consists of elements of the two original languages. The new language of their in-group is full of code-switches in the eyes of an outside group administrator, educator, or researcher.

Giles' speech accommodation theory also helps interpret the dynamic of intergroup relations. For example, the ethnolinguistic vitality of an Atlanta middle-class Mandarin Chinese community (MMC) is much greater than the vitality of an Atlanta working-class Mandarin Chinese community (WMC). According to Giles' theory, a MMC adolescent in Atlanta might first categorize people around him as European American, Mexican American, African American, and Chinese American. Then he might self-identify as a Chinese American. His middle-class Chinese American status might give him some privileges such as attending a prestigious private school, visiting relatives in mainland China, or watching the Opening Ceremony of the 2008 Olympic Game in Beijing. When this MMC adolescent compares his European peers with himself, he does not feel inferior. Instead, he might enjoy the distinctiveness brought by his Chinese American ethnicity. As a result, this MMC might be content with his ethnic identity and choose to integrate the elements of both American culture

and his heritage culture. The story of a WMC might be different. The WMC adolescent goes to a public junior high school. He might categorize his classmates into European American (the Whites), African American, Mexican American, and Chinese American. He self-identifies as a Chinese American. He might be laughed at by a Mexican American because of his small size. But he does not tell this to his parents because they could not help him since they do not know English. He struggles to finish his homework and then helps his parents call two credit card companies. When he compares himself with peers of other group, he might feel inferior. To change his status, he might try to assimilate to the dominant group by improving his English competence. If he is successful, he might be accepted by his European peers and eventually lose his heritage language. If he is not successful, he might be rejected by the dominant group and feel isolated.

Giles' speech accommodation theory allows researchers to locate the language and identity of any individual or group in a specific socio-economic context; however, the important role of temporal factors failed to be addressed. Recently, He (2006) adapted Giles' second language acquisition theory to the experiences of Chinese American. She applies a three-dimensional framework of time, space, and identity to understand Chinese heritage language maintenance and language development.

Theories and Research Relevant to Heritage Language Acquisition

Ethnicity plays an important role in the identity development of minority adolescents (Phinney, Lochner, & Murphy, 1990). He (2008) proposed that the question of identity might be a key to CHL development. Temporally, CHL development is part of an identification process that takes place as the individual evolves through different life periods, such as ongoing negotiation in real time and perceived future benefits based on present choices. Spatially,

successful CHL development could be linked to the degree to which the family chooses to use language, the existence of materials and interactions in the environment to support the learning, and the stance of the mainstream community toward the group and its language. On the identity dimension, successful CHL development could be related to whether the learner has created a niche in the English-speaking community. For example, the learner might have established a comfortable identity in the mainstream culture and is more open to a co-existing ethnic identity. He's identity theory of CHL development is easier to apply compared to Giles' speech accommodation theory. However, He's theory focuses on language achievement rather than CHL behavior, which is more directly impacted by identity.

Like Giles and He, Labov's (1972, 1982, 1989, 1994) sociolinguistic work illustrated the importance of situating linguistic analysis within its appropriate socio-cultural context. A unique tool that Labov provides to researchers is speech community. The concept of speech community helps researchers further categorize numerous immediate situations in Giles' theory and the spatial dimension variables in He's theory. It provides researchers with a yardstick to categorize speech communities associated with Chinese American immigrants. In a "flat world" with modern communication tools, the shared norm is more relevant than the frequency of contact and geographical variables. The following incident illustrates the interaction between concept speech communities and accommodating behavior. A Chinese international student is a member of a Sunday Bible study group in Atlanta. At one group meeting, a new American tutor asked her students who are good at reading English. In Chinese culture, saying I am good at something is boasting and is not encouraged. This Chinese international student and her fellows were surprised, stared at each other, and laughed. The American tutor looked around and waited for responses. Finally, two of the group members raised their hands. According to Labov, the

students' initially uniform response to the tutor's question indicated that the Chinese international student and her peers are in the same speech community, while the tutor is not. The two members who raised their hands are in the same speech community as the Chinese international students. Their raising their hands, on the other hand, represents accommodating behavior to the teacher's expectations and was done in order to assist the tutor with her teaching.

The concept of speech community is also helpful to understand the dynamic interaction between Chinese heritage language learners and their Chinese language teachers. The following typical scenario provides an example. At the beginning of the first Chinese class of the fall semester, Mrs. Zhang met her eight new CHL students. Mrs. Zhang asked the students to take turns reading paragraph by paragraph. The classroom was quiet and her students soon grew restless. When a student struggled with the text, another student volunteered to read. Mrs. Zhang ignored the volunteer and guided the struggling student to finish the reading. The eight CHL students who got bored are in the same speech community, while the teacher is not. The student who raised his hand represents accommodating behavior to a teacher's expectation in an American school. The ignoring of the student indicated that the teacher practices a different way of teaching to which her students are not familiar.

In the current study, the researcher applied the concept of speech community and categorized the different language environments of Chinese American adolescents as immediate family, extended family, peers, and Chinese language school. Labov's concept of shared norm also justified the including of items related to dress and food in a frequently used measure of acculturation scale, the Suinn's Asian Acculturation Scale.

The Heritage Language (HL) Developmental Path

There are several commonly accepted propositions about the nature of identity. Pavlenko and Blackledge (2001) express these as follows: identity is a dynamic rather than a static concept; it is negotiable and changeable; and it is conditioned by context but can be manipulated by individuals, groups and institutions for different purposes.

Xiao (2008) posits that CHL learner language evolves along a path different from either L1A or L2A, as illustrated in Figure 1. According to Xiao, L1 acquisition is about the ultimate uniform success of a native linguistic system. L2 acquisition is about the restructuring of the learner's interlanguage system. Heritage language acquisition (HLA) is neither L1A nor L2A. It is about reconstructing a "discontinued" and incomplete native linguistic system. Xiao argues that the learner's childhood exposure to his HL provides rudimentary HL linguistic abilities and native-speaker grammar intuition. A learner's early exposure to his HL plays an important role in his subsequent learning and success. Over time, HL learners will become stable bilinguals whose two languages play complementary roles in their everyday lives (Valdes & Figueroa, 1994).

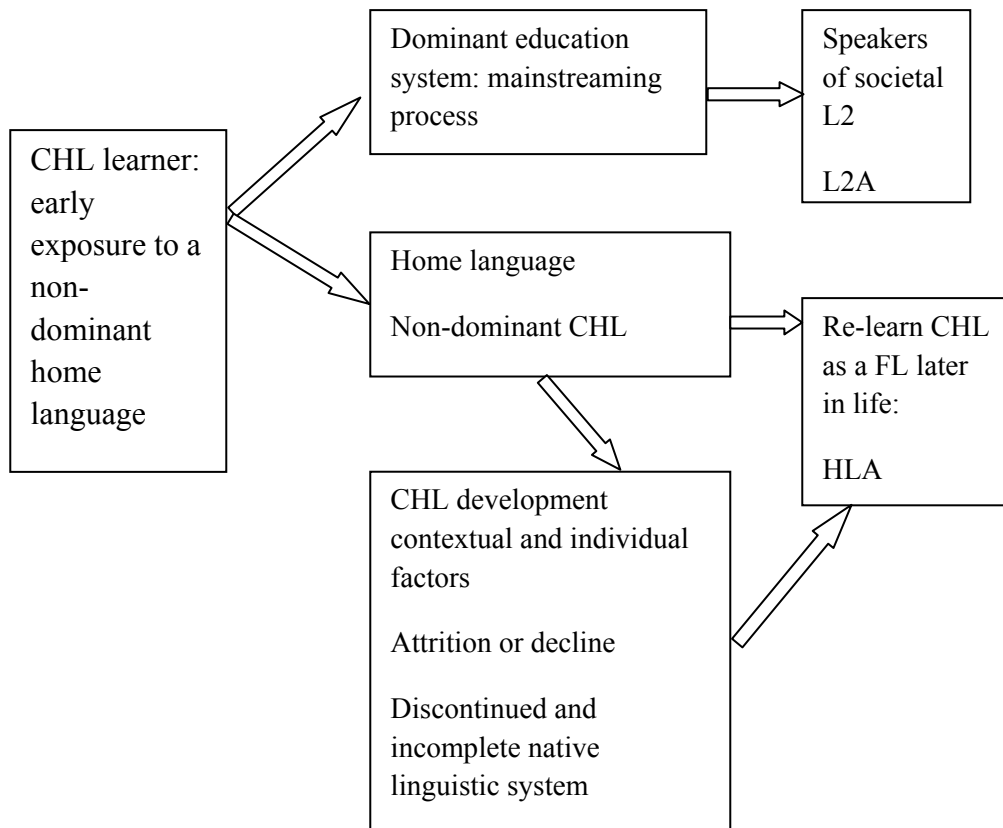


Figure 1. The CHL Developmental Path.

Source: Xiao, Y. (2008). Charting the CHL developmental path. In A.W. He, & Y. Xiao (Eds.), *Chinese as a heritage language: Fostering rooted world citizenry* 264. Honolulu: University of Hawai'i, National Foreign Language Resource Center.

Summary

Giles' work provided the appropriate conceptual framework to locate the language behaviors and self-perceived identities of an individual or a group in appropriate socio-economic context; He's work emphasized the role of temporal factors such as age; Labov's work, especially his work on the speech community, provided the necessary tool to further categorize the numerous contextual environments. Finally, Xiao's HL development path, which posits that

the early exposure to HL plays an important role in an individual's subsequent learning and success has relevance for students' self-perceived competence in their heritage language.

The purpose of this study was to explore the Chinese-as-a-heritage-language learners' perceptions of their ethnicity and the relationships between their self-perceived ethnicity and language behaviors using the theoretical framework of Giles. The primary research questions include how the Chinese American and Chinese children in the United States self-identify, what their language behaviors in different language environments are and what the relationships between their self-perceived ethnicity and their language behavior in a specific environment is.

CHAPTER III. METHODOLOGY

This chapter discusses the methodologies used in the study in details. It starts with a brief introduction to the study. Information on the research design, the population and sample, instrumentation, the methods of data collection, and data analysis.

The following theories frame this study. Tajfel's social identity theory (Tajfel, 1981; Tajfel & Turner, 1986), Giles's speech accommodation theory (Giles & Ogay, 2006), Labov's work on speech communities, and He's identity theory of Chinese heritage language (CHL) acquisition provide useful theoretical frameworks for understanding the relationships among language, ethnicity, and intergroup relationships of Chinese American immigrant adolescents. According to Giles's theory of speech accommodation, there are three types of important factors that determine the vitality of an ethnolinguistic group. These are status factors, demographic factors, and institutional supportive factors. Labov's work on the speech community provided the necessary tool to further categorize the numerous contextual environments. He's work on identity theory of CHL development complemented the speech accommodation theory and speech community by introducing temporal factors such as age. Finally, Xiao's HL development path posits the early exposure to HL as an important role in an individual's subsequent learning and success. Xiao's HL development path has relevance for students' self-perceived competence in their heritage language.

Researchers have identified many factors which influence the development as well as the maintenance of Chinese American heritage language. There are six demographic factors,

including gender, age, origin, socioeconomic status (SES), generation, years-in-US. Mandarin proficiency, English proficiency, peers, home language environment, school language environment, first language, and self-perceived identity (Giles & Ogay, 2006; Qin, 2008; Suinn, Richard-Figueroa, & Vigil, 1987).

Research Questions

The purpose of this study was to explore the relationships between Chinese American adolescents' self-perceived identity and their language behaviors. Specifically, this study seeks to answer the following three research questions:

1. To what extent do context and age affect the self-perceived identities of Chinese American adolescents?
2. What are Chinese American adolescents' language behaviors at home and at Chinese language schools?
3. What are the relationships between Chinese American adolescents' self-perceived identity and their language behaviors in different environments?

Research Design

A survey research design was used in this study. This approach is regarded as one of the best methods for social scientists interested in collecting data to describe populations too large to observe directly (Babbie, 1995). Also, Fraenkel and Wallen (2003) indicate that survey research is a way to obtain data from members of a population (or sample) to determine the current status of that population with respect to one or more variables.

Another strength of this design is that it allows the researcher to use multiple approaches in answering research questions. Descriptive and correlational methods were used to address the research questions posed in the current study.

The use of correlational research design allows the researchers to study large numbers of people with precise, quantitative, numerical data. Usually, data collection is quick, and data analysis can be achieved in a timely manner. The results are relatively independent of the researcher and might have higher credibility with decision makers, such as educational administrators and parents. More important, correlational research design makes it possible to test and validate existing theories about how phenomena occur. Finally, the use of open-ended questions allows the researcher to obtain participants' personal attitudes toward and experiences of phenomena, to identify contextual and setting factors as they relate to the phenomenon of interest, and to determine how participants interpret "constructs" such as Chinese American.

Instrumentation

The "Survey of Chinese as Heritage Language Learner" (see Appendix B) was developed by the researcher for the purpose of gathering data to explore the relationships between the Chinese American Adolescents' self-perceived identity and their language behaviors. The Survey of Chinese as Heritage Language Learner consists of four parts: 1) the demographic section; 2) the identity scale; 3) the language behavior scale; and 4) and the open-ended question section.

Part I – Demographic Section: There are 14 items in Part I, including gender, age, origin of the participant, father's highest level of education, mother's highest level of education, father's occupation, mother's occupation, first language of the participant, willingness take Chinese language class, generation in the US, age of arrival in the US, Mandarin Chinese fluency, English fluency, friends in American daily school.

Part II – Identity Scale: This section contains nine items regarding self-perceived identity. It was developed based on the Suinn-Lew Asian Self Identity Acculturation Scale

(Suinn, Ahuna, & Khoo, 1992). A five-point Likert scale is used: 1 = Very Chinese, 2 = Mostly Chinese, 3 = Chinese American, 4 = Mostly Americanized, and 5 = Very Americanized. This scale includes the following items: 1) how do you dress, 2) how do you eat, 3) what do you eat, 4) how do you prefer to dress, 5) what kind of food do you prefer to eat, 6) how do you perceive your size (height and weight), 7) how would you describe yourself at home, 8) how would you describe yourself at Chinese language school, and 9) how would you describe yourself at American daily school?

Part III – Language Behavior Scale: This scale was developed after an extensive review of literature. It includes 20 items which address participants’ language behaviors with immediate family, extended family, peers at Chinese language school, and teachers at Chinese language school. Participants were asked to respond to each question using a five-point Likert scale: 1 = Almost or always Chinese, 2 = More Chinese than English, 3 = Balanced use of Chinese and English, 4 = More English than Chinese, 5 = Almost or always English.

Part IV – Open-Ended Questions: This final section contained two open-ended questions designed to give participants the opportunity to provide comments in their own words on the importance of learning Chinese. Chinese American children and adolescents were asked to choose whether or not learning Chinese language is important to them and to explain why.

Validity

The validity of a questionnaire is dependent upon its accuracy or the ability to measure what it purports to measure (Huck, 2000). To ensure that the questions developed by the researcher accurately measured Chinese American adolescents’ self-perceived identity and their language behaviors, the researcher took several steps to have the questionnaire examined for content and face validity. First, the identity section was developed based on an existing,

validated instrument, Suinn-Lew Asian Self-Identity Acculturation Scale (Suinn, Ahuna, & Khoo, 1992). Second, a panel of experts in survey research methods and heritage language education examined the content validity of the research instrument. The questionnaire was revised based on the feedback from these experts. Third, the researcher's committee members served as additional judges of content validity. Finally, the survey was field tested with 20 Chinese American adolescents at two local Chinese weekend language schools to examine its face validity. Format, phrasing of questions, and clarity of purpose were revised based on the feedback of the field testing participants.

Reliability

The issue of reliability is mostly concerned with consistency. It is essential to demonstrate that the instrument will remain consistent throughout its administration. In the current study, several measurement scales were used. Cronbach's coefficient alpha was used to assess the internal consistency reliability of each scale. Usually, an internal consistent estimate of .70 or greater suggests that items are internally consistent (Sowell, 2001). The scale scores for the domains of general identity, participants' language behavior (PLB) with immediate family, PLB with extended family, PLB with peers, PLB at Chinese school, others' language behavior (OLB) in the immediate family, OLB in the extended family, and OLB among peers showed internal consistency reliability. The respective alpha scores were: general identity ($\alpha = .835$), participants' language behavior (PLB) with immediate family ($\alpha = .894$), PLB with extended family ($\alpha = .985$), PLB with peers ($\alpha = .929$), PLB with teacher ($\alpha = .637$), others language behavior (OLB) in the immediate family ($\alpha = .681$), OLB in the extended family ($\alpha = .985$), and peer OLB ($\alpha = .962$).

Procedures and Data Collection

The researcher first contacted the principals of the target schools, such as the Atlanta Contemporary Chinese Academy (ACCA) and the Minnesota China Academy (MCA). After

obtaining the agreement letters from the school principals for the Institutional Review Board, the researcher e-mailed the advertisements and consent forms for the research to ACCA principal. Then ACCA principal distributed the advertisements to students and parents by e-mail. The researcher did not include MCA in the current study due to cost consideration. She decided to treat MCA as a back-up site if she could not reach enough participants.

Prior to data collection, five Chinese international graduate students were recruited as survey administrators and trained to assist with data collection. The researcher explained the primary responsibilities to the five survey administrators, which included introducing the research to participants (see appendix B); distributing surveys to participants; maintaining a quiet environment for participants while they complete the survey; answering questions of the participants; collecting the survey response; returning the completed survey directly to the researcher; and giving out the compensation. In addition, the researcher explained the rights of participants to survey administrators, such as participants can choose to withdraw, or that they can just turn in a blank or incomplete survey.

Class schedules were obtained from the official website of the participating school. These schedules included 28 classes from grade three to grade nine of two campuses. Each graduate research assistant was assigned to a specific grade. The researcher and five survey administrators visited ACCA three times in May, 2009 to complete the data collection procedures.

During the first visit, they gave classroom teachers 500 consent forms and explained the purpose of the research project to them. The classroom teachers distributed the consent forms to students and asked them to return the signed form to their classroom teachers the following week. Students who agreed to participate in this research gave the parent consent forms to their

parents. Parents who agreed to have their children participate in this research signed the consent forms and gave them to the Chinese language teachers of their children.

The researcher and five survey administrators collected 257 consent forms from the teachers when they visited the school the second time. They administered the questionnaire during the break time with the assistance of the classroom teachers. It took approximately 15 minutes for students to complete the survey. The five survey administrators and the researcher collected the surveys as soon as the participants completed them. Students received \$1 after they turned in their completed survey. The research team visited the school a third time to administer and collect surveys, following the same procedures as they did the week before.

Data Analysis

The data generated from the study were coded and analyzed using the Statistical Package for the Social Sciences (SPSS V 17.0). Descriptive statistics (frequencies, means, standard deviations, and percentages) and regression analysis were used to address to what extent context and age affect the self-perceived identities of Chinese American adolescents. Four demographic variables, including father's education, father's occupation, mother's education, and mother's occupation, were coded and calculated based on the *Hollingshead Four-Factor Index of Social Status* (HI; Hollingshead, 1975). With this method, occupations were rated on a 9-point scale (Appendix C), categorizing approximately 450 titles from the 1970 United States Census. Education was rated on a 7-point scale (Appendix D) based on the number of years of schooling. To calculate HI for a family, the occupation and education scores are weighted and summed. The occupation score is multiplied by 5, and the education score is multiplied by 3. For dual-income families, HI is calculated by averaging the scores for each earner. HI scores range from 8 to 66.

Structural equation modeling (SEM) was used to test two hypothesized models depicting the factors associated with participants' language behaviors (PLB) and others' language behaviors (OLB). The OLB model specified four different language environments outside of participants' daily school, including F1 (immediate family), F2 (extended family), F3 (peers at Chinese language school), and tsl (Chinese language school classroom) (see Figure 2).

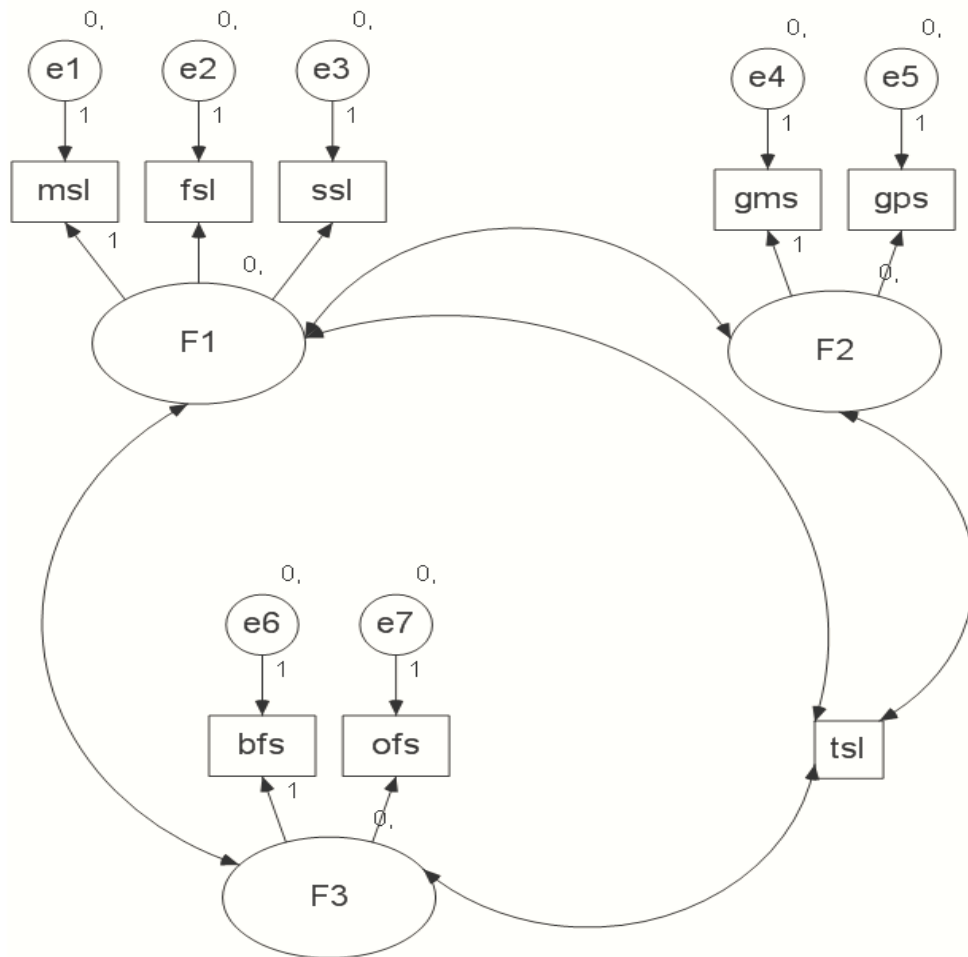


Figure 2. Others' Language Behavior Model

Note: e = unobserved variable; bfs = best friends speaking language; fsl = father speaking language; gms = grandmother speaking language; gps = grandfather speaking language; ofs = other friends' speaking language; ssl = sibling speaking language; tsl = teacher speaking language; F1 = immediate family

language environment; F2 = extended family language environment; F3 = peers at Chinese language school language environment.

The PLB model specified participants' language behaviors in different environments, including F1 (PLB with immediate family), F2 (PLB with extended family), F3 (PLB with peer at Chinese school), and F4 (PLB with teacher at Chinese school) (see Figure 3).

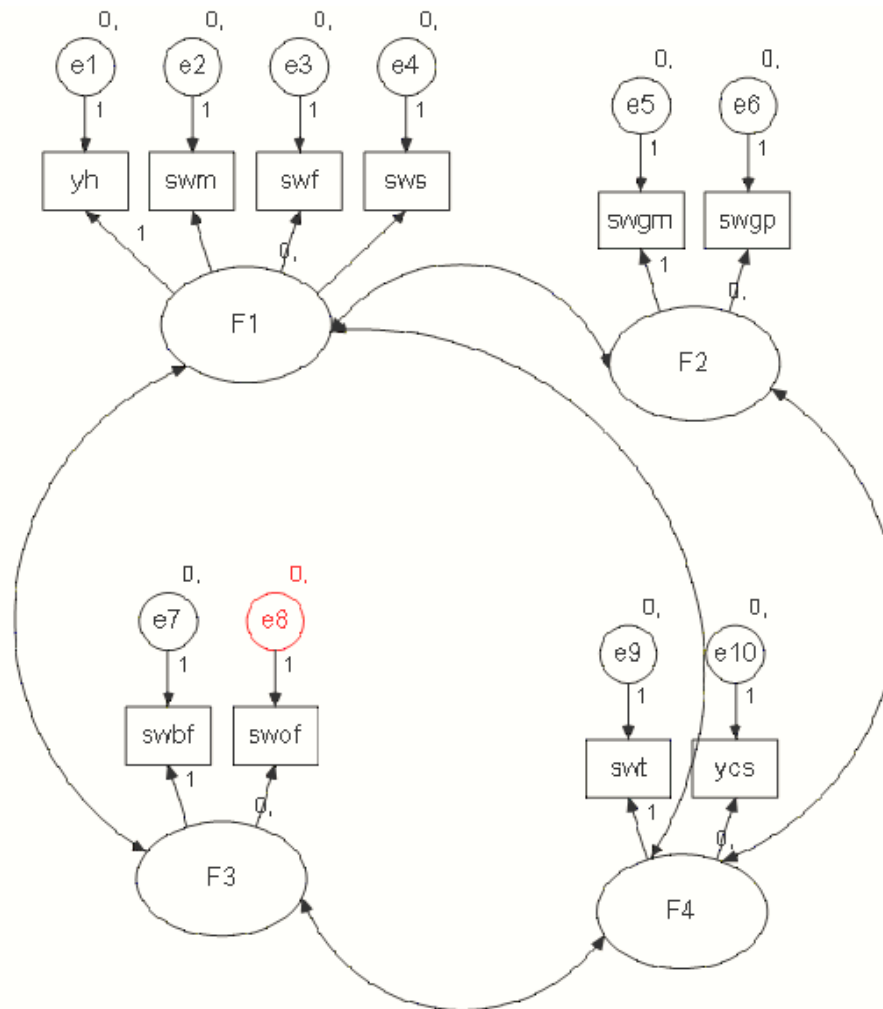


Figure 3. Participants' Language Behavior Model

Note: e = unobserved variable; F1 = PLB with immediate family; F2 = PLB with extended family; F3 = PLB with peer at Chinese school; F4 = PLB with teacher at Chinese school; swbf = PLB with best

friends; swf = PLB with father; swgm = PLB with grandmother; swgp = PLB with grandfather; swm = PLB with mother swof = PLB with other friends; sws = PLB with sibling; swt = PLB with teacher; ycs = self-reported PLB at Chinese language school; yh = self-reported PLB at immediate family.

Regression analysis was used to identify factors which influenced the language behaviors of participants. An initial regression analysis was used to determine which demographic variables influence the language behavior of participants. Those contributing demographic variables were included in a second round of regressions. The second round included the influential demographic variables, four OLB variables, and general identity.

For the responses of open-ended questions, comments of the participants were first input to an Excel spread sheet by the researcher. Responses stating that learning Mandarin Chinese was important were coded as 1; not important were coded as -1, and responses that were mixed, i.e., was important as well as not important were coded as 0. Then the researcher read through the responses one by one to generate themes, such as communication, visiting China, Chinese as a world-wide language, etc. After a theme was generated from each response, the researcher sorted all the responses in alphabetical order and counted these codes by theme.

Summary

The purpose of Chapter Three was to present the methodology utilized by this research inquiry on the relationships between the Chinese American adolescents' self-perceived identity and their language behaviors. The Survey of Chinese as Heritage Language Learner (SOCALL) research method, structural equation modeling, and multiple regression analysis were applied to the process of this investigation. Altogether, SOCAHLL consists of 14 demographic questions, 9 self-identity questions, 20 language behavior questions, and two open-ended questions. The validity and reliability of the instrument were determined according to the acceptable guidelines

and through a review by a panel of experts. The researcher took and passed the online tutorial on ethical treatment of subjects before the research protocol was approved by the Institutional Review Board (IRB) of Auburn University. During the investigation, the sample received ethical treatment as outlined in the IRB standards.

The results of the information obtained according to the procedures outlined in Chapter III are analyzed and presented in Chapter IV. The summary, conclusions and recommendations of this investigation are provided in Chapter V. The researcher believes that the findings of this investigation exploring the relationships between self-perceived identity and language behaviors will provide valuable information that can be utilized by school administrators, teachers, parents, as well as students to improving the quality of Chinese as heritage language teaching and learning.

CHAPTER IV. RESULTS

Introduction

This chapter consists of a brief overview of the study and its results. There were two purposes for this quantitative study which was conceptualized as an in-depth examination of the self-perceived identity and language behaviors of Chinese American adolescents: (1) to ascertain personal and educational background information that may be associated with different ways in which Chinese American adolescents perceived themselves, and (2) to determine the relationships between certain personal and educational background variables of Chinese American adolescents, their self-perceived identities, and their language behaviors in different environments.

The sample for this study included 224 Chinese American adolescents from a Chinese language school in a southeastern city. The data were collected in May 2009. Information was gathered regarding participants' demographic characteristics, participants' self-reported identities, participants' language behaviors at home as well as at Chinese language school, and the relationships between demographic variables, others' language behaviors within the participants' environment, participants' self-reported identities, and participants' language behaviors in different environments.

A descriptive analysis of participant demographics was conducted. In addition, a hierarchical regression was performed to identify the relationship between the demographic

variables, the self-perceived identities, others' language behaviors, and participants' language behaviors. These results are reported in this chapter.

Demographic Characteristics of Chinese American Adolescents

A total of 257 people participated in this survey. Among them, 224 are in the age range of 9 to 16 years old. The demographic characteristics of the participants are summarized in Appendix C. The number of female participants (128, 57.1%) is slightly higher than the number of male participants (96, 42.4%). The majority of participants are from high social economic status family. For example, 71.9% of their fathers and 54% of their mothers went to graduate school, and 62.4% of their fathers and 45.9% of their mothers are in a variety of professional fields. Participants' generations and language histories are summarized in Table 2. The majority, 70.4%, are second generation Chinese American and 26.9% are first generation. Most of the participants (86.2%) have a Mainland China background and their first language is Mainland Chinese (60.7%). Many of them (61.0%) would continue to take Chinese classes at a Chinese school if they could choose. The majority of the participants (76.8%) were native English speakers. Almost one third (31.7%) of the participants could conduct a conversation on a variety of topics in Chinese. A total of 48 (21.4%) participants claimed that their Mandarin Chinese was good enough to communicate with overall accuracy. Only 26 (11.6%) of them reported that they were native Mandarin Chinese speakers as well as English speakers.

Table 2

Participants' generations and language histories

participants	Percentage
Born in U.S.	75.2%
Self-reported 1.5 generation	26.9%
Self-reported 2 nd generation	70.4%
Other generation	2.6%
Self-reported native speakers of English	76.8%
Self-reported native speakers of Mandarin Chinese	11.6%
English/Chinese Bilinguals	100%

Research Question 1

Research Question 1 was: To what extent do the context and age affect how Chinese American adolescents self-identify themselves? The Chinese American Self-Perceived Identity Scale (CASPIC) was used to measure participants' identities. This scale consisted of nine Likert-type items. CASPIC measures participants' behaviors and preferences regarding their dress, food, ethnic/national identification, etc., with 1 representing "very Chinese" and 5 representing "very Americanized." The average score of the nine items will be used as the general identity score of the participant. The overall scale was examined for internal consistency reliability using Cronbach's alpha and yielded a supportive estimate of .835.

Responses to the nine items related to self-identity were summarized in Table 3 and Table 4. In general the responses supported a Chinese American identity, with an overall mean of 3.27. Participants, particularly, identified themselves as Americans in terms of how they dress and how they perceive themselves at their daily school. In contrast, they chose to identify themselves as

Chinese regarding how and what they ate. Participants perceived themselves similarly at home ($M = 3.11$) and at Chinese language school ($M = 3.11$). However, they were more likely to identify themselves as “American” at their American daily school ($M = 4.19$). A one-way ANOVA supported a significantly higher Americanized identification at their daily school, when compared to either home ($F = 8.886, p < .001$) or Chinese school ($F = 9.196, p < .001$).

Table 3

Chinese American Adolescents’ Self-Perceived Identity

Variables	n	Mean	S.D.
How do you dress	221	4.29	.766
How do you identify yourself at your daily school	221	4.19	.891
How do you prefer to dress	220	4.14	.923
How do you identify yourself at Chinese language school	219	3.11	1.186
How do you identify yourself at home	221	3.11	1.128
Your size	215	3.05	1.191
What do you prefer to eat	221	2.73	1.223
How do you eat	222	2.61	1.337
General identify of Chinese American adolescents	207	3.27	.718

Table 4

Context and Age Effect on Chinese American Adolescents Self-Perceived Identities

Context	Age Group	n	Mean
Home	1 (9–11)	80	3.15
	2 (12–13)	68	3.16
	3 (14–17)	70	2.98
Chinese school	1 (9–11)	80	2.75
	2 (12–13)	68	3.28
	3 (14–17)	70	3.31
Daily school	1 (9–11)	80	4.35
	2 (12–13)	68	4.22
	3 (14–17)	70	3.94

Findings from the current study suggested that feelings of ethnic identity may fluctuate across various situations the day within individuals (see Table 4). Although the data supported a Chinese American identity in general, with an overall mean of 3.27, further investigations confirmed that CHL learners' identities vary contextually and relationally. In general, the participants were more likely to identify themselves as "American" at their American daily school ($M = 4.19$) when compared to either home ($F = 8.886, p < .001$) or Chinese school ($F = 9.196, p < .001$). For example, younger participants (9–11 age group) are more Americanized at daily school ($M = 4.35$) than at home ($M = 3.15$) or at Chinese school ($M = 2.75$). Older participants (14–17 age group) identified themselves least Americanized at home ($M = 2.98$) compared at Chinese school ($M = 3.31$) and daily school ($M = 3.94$).

Research Question 2

Research Question 2 was: What are the language behaviors of Chinese American adolescents in different contexts?

The Chinese American Adolescents' Language Behaviors Scale (CAALBS). The Chinese American Adolescents' Language Behavior Scale consists of 20 items using a five-point Likert scale which measures the language behaviors of participants, with 1 representing "almost or always Chinese" and 5 representing "almost or always English." Of the 20 items, 10 pertain to participants' language behavior (PLB), 8 to others' language behavior (OLB), and 2 participants' language preference (PLP). The CAALBS consists of seven subscales, including immediate family PLB scale (four items), extended family PLB scale (two items), with peer PLB scale (two items), Chinese school PLB scale (two items), immediate family OLB scale (three items), extended family OLB scale (two items), and peer OLB scale (two items).

The hypothesized PLB model (see Figure 4) was evaluated via AMOS 7.0 using the following indexes: the chi-square test, the comparative fit index (CFI), the normed fit index (NFI), and the root mean square error of approximation (RMSEA). In addition, the path coefficients were assessed for statistical significance at $p < .05$.

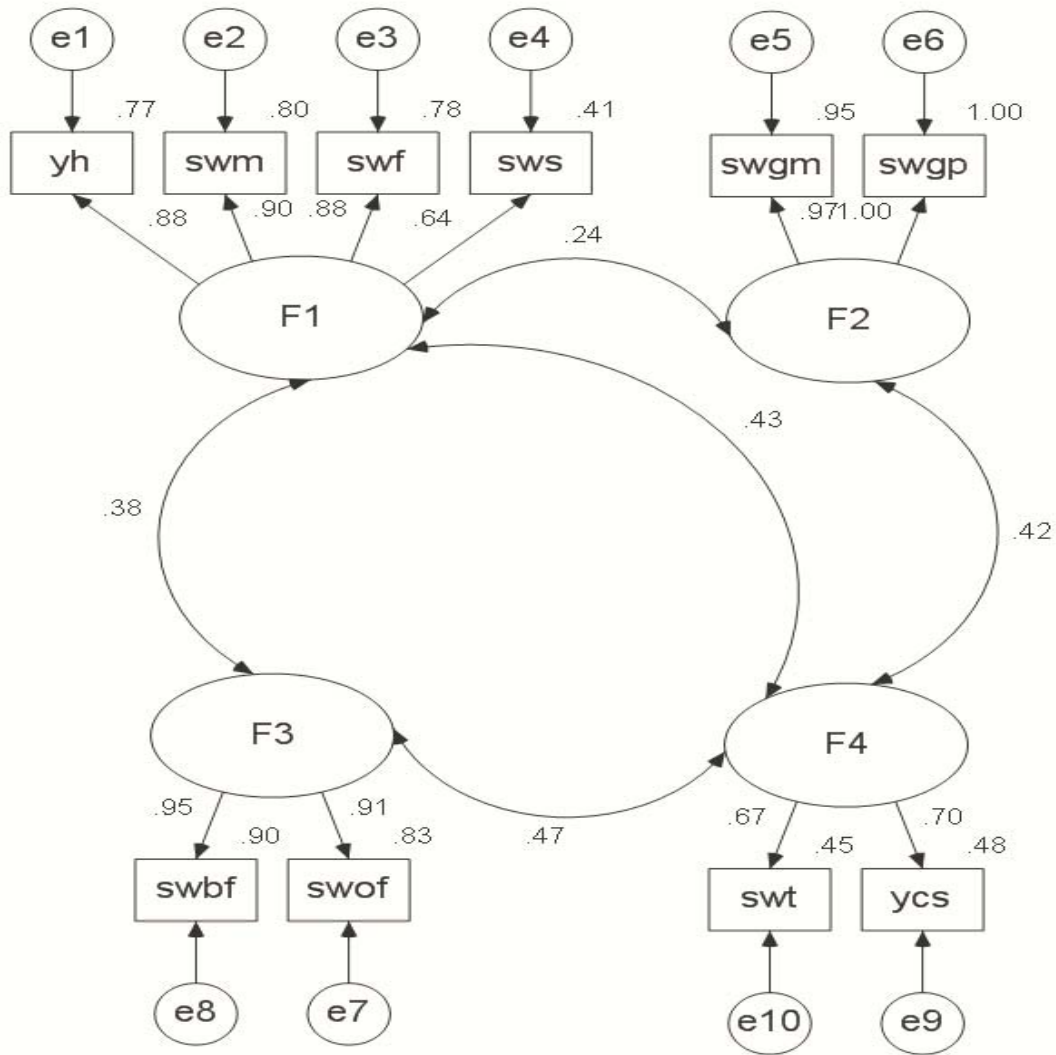


Figure 4. The Hypothesized Participants Language Behavior (PLB) Model

Note: e = unobserved variable; F1 = PLB with immediate family; F2 = PLB with extended family; F3 = PLB with peer at Chinese school; F4 = PLB with teacher at Chinese school; swbf = PLB with best friends; swf = PLB with father; swgm = PLB with grandmother; swgp = PLB with grandfather; swm = PLB with mother swof = PLB with other friends; sws = PLB with sibling; swt = PLB with teacher; ycs = self-reported PLB at Chinese language school; yh = self-reported PLB at immediate family.

The chi-square statistic is widely used to test the difference between the predicted and the observed relationships. A non-significant chi square is desired when the researcher predicts a close fit. The chi-square value, however, is very sensitive to sample size. As sample size increases, power increases. Therefore, even small discrepancies between the observed and predicted covariances could be detected. A good-fitting model could be rejected because of trivial but statistically significant differences between the observed and predicted values. Because of the limitations of chi-square test, Bentler (1990) and Joreskog and Sorbom (1989) advised against the sole use of the chi-square value in judging the overall fit of the model. Other fit indexes, such as CFI, NFI, and RMSEA, were developed as alternatives or supplements to chi square.

CFI and NFI are common incremental fit measures which indicate the relative position of the models on the continuum between worst fit to perfect fit, with values greater than .90 suggesting an acceptable fit between the model and the data. RMSEA is one of the widely used absolute fit measures. It is the average of the residuals between the observed correlation/covariance from the sample and the expected model estimated for the population. According to Byrne (1998), RMSEA values less than .08 are acceptable, while values greater than .10 are generally unacceptable.

In the current study, the chi-square test of the PLB model was significant, χ^2 (30, N = 224) = 60.52, $p < .001$, the results yielded high goodness-of-fit indexes, indicating that the hypothesized PLB model fit the observed data (Bentler, 1990; Hu & Bentler, 1999; Joreskog & Sorbom, 1996; Knight, Viridin, Ocampo, & Roosa, 1994; Loehlin, 2004; Thompson, 2004). The CFI and the NFI yielded impressive indexes of .979 and .960 respectively. The RMSEA

reported a value of .068, indicating good fit of the model. All the path coefficients demonstrated both statistical significance ($p < .05$) and practical significance ($\beta > .3$)

The hypothesized OLB model (see Figure 5) was evaluated via AMOS 7.0 using the following indexes: the chi-square test, the comparative fit index (CFI), the normed fit index (NFI), and the root mean square error of approximation (RMSEA). In addition, the path coefficients were assessed for statistical significance at $p < .05$. Although the chi-square test was significant, $\chi^2 (16, N = 224) = 38.81, p < .001$, the results yielded high goodness-of-fit indexes, indicating that the hypothesized model fit the observed data. The CFI and the NFI yielded impressive indexes of .980 and .966 respectively. The RMSEA reported a value of .080, indicating good fit of the model. All the path coefficients demonstrated both statistical significance ($p < .05$) and practical significance ($\beta > .3$).

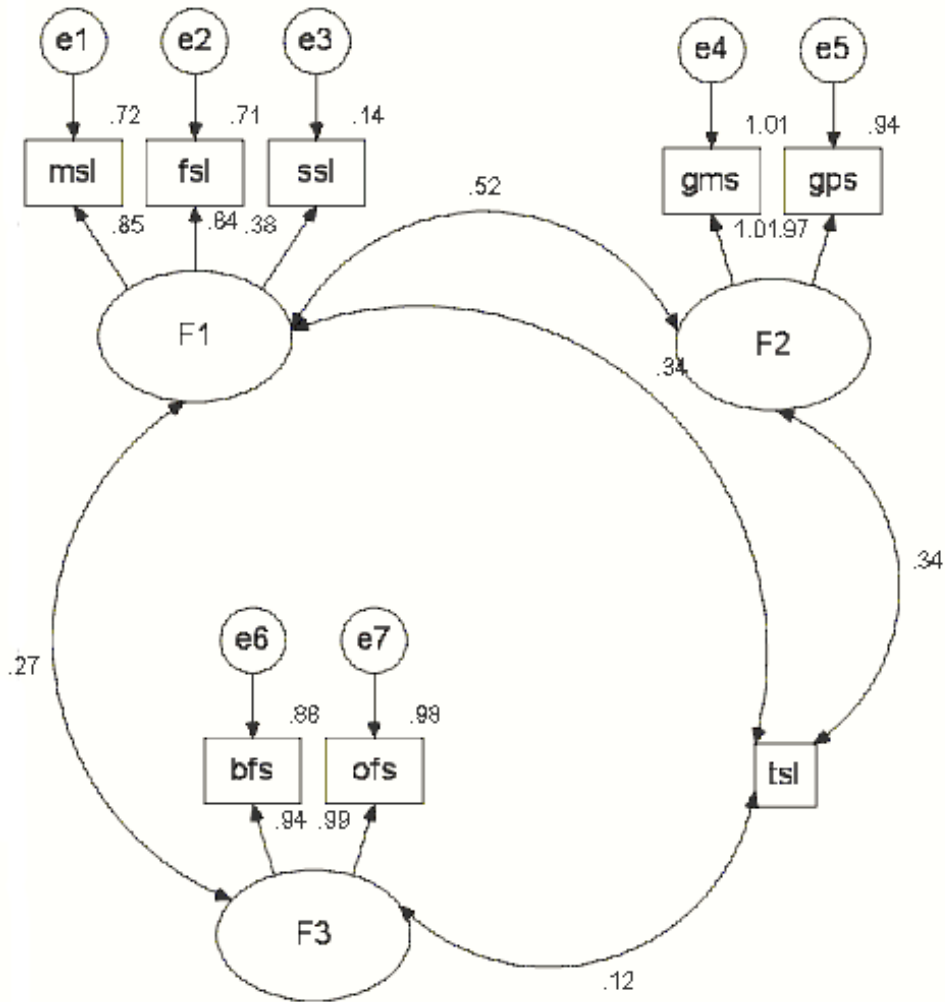


Figure 5: The Hypothesized Others' Language Behavior (OLB) Model

Note: e = unobserved variable; bfs = best friends speaking language; fsl = father speaking language; gms = grandmother speaking language; gps = grandfather speaking language; ofs = other friends' speaking language; ssl = sibling speaking language; tsl = teacher speaking language; F1 = immediate family language environment; F2 = extended family language environment; F3 = peers at Chinese language school language environment.

The results of Chinese American adolescents' language behaviors were summarized in Table 5. Overall, the seven measurement scales yielded supportive reliability estimates, ranging from a low of .637 (Chinese School Scale) to .985 (Extended Family Scale), with a median of .929. In general, they reported most English use with peers, least English use with extended family members, most Mandarin Chinese use with their extended family members, and least mandarin Chinese use with their peers.

Table 5

Chinese American Adolescents' Language Behaviors

Scales	Cronbach's alpha	Items	n	Mean	S.D.
PLB 1: Immediate Family Scale (four items)	.894 (N = 174)	What language(s) do you speak with your sibling at home?	178	4.02	1.273
		What language(s) do you speak at home?	218	3.14	1.203
		What language(s) do you speak with your father at home?	211	2.98	1.399
		What language(s) do you speak with your mother at home?	215	2.86	1.361
PLB 2: Extended Family Scale (two items)	.985 (N = 179)	What language(s) do you speak with your grandfather?	180	1.34	.929
		What language(s) do you speak with your grandmother?	201	1.29	.848
PLB 3: With Peer Scale (two items)	.929 (N = 201)	What language(s) do you speak with your other friends?	204	4.33	.924
		What language(s) do you speak with your best friends?	207	4.02	.916
PLB 4: At Chinese School Scale	.637	What language(s) do you speak at Chinese school?	212	3.18	1.302
		What language(s) do you speak with your Chinese language teacher?	211	2.27	1.206

Table 5 (continued)

Scales	Cronbach's alpha	Items	n	Mean	S.D.
OLB 1: Immediate Family Scale (three items)	.681 (N = 171)	What language(s) does your sibling speak at home?	173	3.78	1.422
		What language(s) does your father speak at home?	210	2.11	1.175
		What language(s) does your mother speak at home?	212	1.93	1.106
OLB 2: Extended Family Scale (two items)	.985 (N = 167)	What language(s) does your grandfather speak at home?	169	1.27	.950
		What language(s) does your grandmother speak at home?	185	1.22	.832
OLB 3: Peer Scale (two items)	.962 (N = 197)	What language(s) do your other friends speak at Chinese school?	200	4.02	1.068
		What language(s) do your best friends speak at Chinese school?	201	4.00	1.102
		What language(s) does your teacher speak at Chinese school?	204	1.63	1.016

More specifically, Chinese American adolescents reported a balanced use of Chinese and English ($M = 3.14$) at home, using more English than Chinese with their siblings ($M = 4.02$), and a balanced use of English and Chinese with their father ($M = 2.98$) and their mother ($M = 2.86$). When they spoke with their extended family members, Chinese American adolescents almost or always used Mandarin Chinese with their grandfather ($M = 1.34$) and grandmother ($M = 1.29$). The other two scales measured the language behaviors at Chinese language schools. Responses to items on these scales indicated that Chinese American adolescents used mostly English with their other friends ($M = 4.33$) and best friends ($M = 4.02$) while using the least English with their

Chinese teacher ($M = 2.27$). Overall, they kept a balanced use of English and Chinese ($M = 3.18$) at Chinese language school.

Others' language behaviors. The findings from this study also suggested that outside of their American daily school, Chinese American adolescents live in at least four different kinds of language environments, including an English language environment when they are with their peers, a Chinese English bilingual language environment with their immediate family, a Chinese language environment in their Chinese language classrooms, and a Chinese language environment with their extended family. To be more specific, their other friends ($M = 4.02$) and best friends ($M = 4.00$) spoke more English than Chinese at Chinese language school. Their immediate family members reported a balanced use of English and Mandarin Chinese, with siblings more English than Chinese ($M = 3.78$), and father ($M = 2.11$) and mother ($M = 1.93$) more Chinese than English. Their Chinese teacher reported more use of Chinese than English at their Chinese language classroom ($M = 1.63$). Their extended family reported almost always or always using Chinese, with grandfather using a little bit more English ($M = 1.27$) than grandmother ($M = 1.22$).

Research Question 3

Research Question 3 was: What are the relationships between Chinese American Participants' self-perceived ethnicity and their language behavior in a specific environment?

Immediate family. A preliminary regression analysis using five demographic variables identified age when the participants arrived in the US as a significant contributor to language behavior. This variable was used in a hierarchical regression along with others language behavior and participants' identity. The overall model resulted in an R^2 of .563 ($F_{4,107} = 34.52, p < .001$). More specifically, others' behavior (immediate family speaking language, extended family speaking language) contributed 43.9% to this model beyond participants' age when they

arrived in the US. Finally, there was a statistically significant effect of general identity, with a unique contribution of 4.5% (F, p).

Extended family. A preliminary regression analysis using five demographic variables identified gender as a significant contributor to language behavior. This variable was used in a hierarchical regression along with others language behavior and participants' identity. The overall model resulted in an R^2 of .444 ($F_{4,113} = 22.6, p < .001$). More specifically, others' behavior (immediate family speaking language, extended family speaking language) contributed 36.8% to this model beyond participants' gender. Finally, the effect of general identity was not statistically significant, with a unique contribution of 0.7% (F, p).

Chinese school with peers. A preliminary regression analysis using five demographic variables identified age and age arrived in the US as significant contributors to language behavior. These variables were used in a hierarchical regression along with others language behavior and participants' identity. The overall model resulted in an R^2 of .600 ($F_{4,168} = 63.07, p < .001$). More specifically, others' behaviors (peer-speaking language) contributed 46.5% to this model beyond participant's age and age arrived in the US. Finally, there was a statistically significant effect of general identity, with a unique contribution of 1.7%.

Chinese school with teachers. A preliminary regression analysis using five demographic variables identified age and age arrived in the US as significant contributors to language behaviors. These variables were used in a hierarchical regression along with others' language behavior and participants' identity. The overall model resulted in an R^2 of .496 ($F_{5,107} = 21.06, p < .001$). More specifically, others' behaviors (immediate family speaking language and teacher speaking language) contributed 39.9% to this model beyond participant's age and

age arrived in the US. Finally, there was a statistically significant effect of general identity, with a unique contribution of 4.5%.

Table 6

Regression Models of PLB at Different Language Environments

Regression	PLB with Immediate Family			PLB with Extended Family		
	<i>R</i> ² / <i>R</i> ² change	Beta	Sig.	<i>R</i> ² / <i>R</i> ² change	Beta	Sig.
1. Demographics	.079			.069		
Age						
Gender					-.140	.004
Generation						
Age arrived in US		-.194	.003			
SES						
2. Others' Behaviors	.439			.368		
OLB with Immediate family		.612	.000			
OLB with Extended family		-.161	.027	.315	.502	.000
OLB Peers						
OLB Teacher				.053	.260	.000
3. Identity	.045	.241	.001	.007	-.090	.227
Total Model	.563			.444		

Table 6 (continued)

Regression	PLB with Peer			PLB at Chinese School		
	<i>R</i> ² / <i>R</i> ² change	Beta	Sig.	<i>R</i> ² / <i>R</i> ² change	Beta	Sig.
1. Demographics	.118			.053		
Age		.169	.001		.191	.008
Gender						
Generation						
Age arrived in US		-.095	.064		-.123	.081
SES						
2. Others Behaviors	.465			.399		
OLB with Immediate family				.102	.227	.007
OLB with Extended family						
OLB Peers		.653	.000			
OLB Teacher				.297	.399	.000
3. Identity	.017	.143	.008	.045	.248	.003
Total Model	.600			.497		

Open-Ended Questions

A total of 198 participants responded the two open-ended questions. Among them, 167 (84.3%) participants think learning Mandarin Chinese is important to them. Table 7 summarizes top 10 reasons. Communicating with my family, grandparents, relatives, and other Chinese is most frequently mentioned, followed by culture, tradition, and heritage. Visiting China is the third most frequently mentioned by the participants.

Table 7

Top 10 Reasons of Thinking Learning Mandarin Chinese is Important

Reasons	Frequency
Communicate with my family/grandparents/relatives/ other Chinese, and etc.	60
Culture, tradition, heritage	33
Visit or go to China	30
Chinese is a world-wide language	20
China is a growing world power	20
A better chance of getting a job	18
Education/college/college application	16
Be bilingual or multilingual	15
Identity/ I am Chinese or we are Chinese	15
My family speaks Chinese or expect me speak Chinese	9

Seventeen (17) participants (8.59%) proposed both advantages and disadvantages of learning Mandarin Chinese. They admitted that learning Mandarin Chinese was important. Meanwhile, they thought it was not important to them since it took too much time or they might not use it in the future. Fourteen (14) participants responded that learning Mandarin Chinese was not important to them. Among them, 11 participants thought learning Mandarin Chinese was boring. Others thought learning Mandarin Chinese was useless and took too much time.

CHAPTER V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This section consists of the summary, conclusions, limitations, and recommendations based on the findings of the study. The current study sought to explore (a) To what extent context and age affect the self-perceived identities of the Chinese American adolescents, (b) what their language behaviors in different language environments are, and (c) what the relationships between their self-perceived ethnicity and their language behavior in a specific environment are. In the following, the findings are discussed in relation to those from other heritage language (HL) groups, from a cross-section study of Chinese heritage language (CHL) speakers, and from other relevant studies.

Summary

Age and Context Affect Chinese American Adolescents' Self-Perceived Identities

The youngest group (age 9 to 11) of the participants reported the least Americanized identity when they were at their Chinese school. The average identity score in Chinese language school increased sharply from 2.75 to 3.28 when they reach age 12 and 13, which indicated a turn to a more Americanized identity. This finding is consistent with existing research (Xiao, 2008; Li, 2006) and observations (Ma, 1996) which reports that CHL learners disliked going to Chinese language school and start to drop out when they were at middle school.

The data also suggested that age and context are two important predictors of CHL identity development. In general, once they started to become immersed into the English mainstream culture, CHL learners become more and more Americanized at home, usually by age 12 or 13. Older

adolescents tended to demonstrate greater Chinese identity at home, most likely after their Americanized identities had been established. At Chinese schools, they demonstrated a more Chinese-oriented identity at a young age and gradually demonstrated more and more an Americanized identity. However, in daily schools, they started with a very strong Americanized identity. Their identity slightly developed toward a Chinese-American orientation after age 14.

These findings on CHL identity are consistent with some previous findings. According to Yip and Fuligni (2002), there was a positive association between ethnic behavior and ethnic identity salience. In their study, adolescents reported feeling more Chinese on days in which they engaged in more ethnic behaviors such as reading a Chinese newspaper. Similarly, participants in this study identified with Chinese regarding how and what they ate.

There are two main factors which contribute to the formation of a Chinese oriented identity of these Chinese American adolescents regarding how and what they ate. First, Chinese cuisine has become an integral part of the American dining scene (Chinese Restaurant News, 2010). The prolific Chinese restaurants that have cropped up in every corner of the U.S. are the most common landmark of the Chinese impact in America (Wikipedia, 2010). Today, there are over 45,600 Chinese restaurants spreading across the 50 states, more than McDonald's, Burger King, and Wendy's combined. These Chinese restaurants represent a \$20 billion annual sales industry. About 72% of Chinese restaurants are open 7 seven days a week, year round. About 49% of Chinese restaurants offer a menu that contains 100 –150 dish items. Egg rolls, General Tao's Chicken, Broccoli & Beef, Kung Pao Chicken, Sweet & Sour Pork, Hot & Sour Soup, Wonton Soup, Chicken Chow Mein, Egg Foo Young and Fried Rice are the Top 10 best selling Chinese food items. The time in which Chinese were scorned as rat-eaters is history (Jen, 2005) is history.

Second, Chinese cuisine is an integral part of the Chinese American family life. Chinese American mothers and grandmothers prepare authentic Chinese food to their family daily according to the writings of CHL learners (Cong, 2009). Experienced CHL heritage language teachers who balance the instruction of Chinese language and culture could successfully intrigue students' interest, even in the teaching of writing in Chinese. For example, a fifth grade CHL teacher, Mrs. Cong, plans to teach her students to write about Chinese cuisine. She used Go to Restaurant as teaching material and covered new vocabulary in one and half classes. After that, Mrs. Cong asked "Do you like Chinese food or not?" "Which dishes do you like?" After a well-participated discussion, Mrs. Cong proposed the students to write about their mother's best dishes so more people will know them. Mrs. Cong allowed her students to complete the essay in two to three weeks. Then she scheduled a potluck after middle term for students and parents to share the brand dish of the mothers. During the potluck, students read their essays first, then they ate the dishes prepared by their parents, such as egg pancake with chives, fried lotus roots, and fried tofu. The hands-on experience deepened students' understanding about the characters of Chinese cuisine as "beautiful presentation and delicious." Later, 24 (50%) students in her class published their essays on parents' brand dished on their school journal (Cong, 2009).

Chinese American Adolescents' Language Environments and Language Behaviors

Findings from the current study confirmed that CHL learners live in a multilingual environment: their peers speak English with them; their parents speak both Chinese and English; their grandparents and Chinese language teacher speak Chinese to them. In general, CHL learners reported most Chinese use with their grandparents, followed by their Chinese language teachers, mother, father, and siblings. They reported least Chinese use with their peers even when they are at Chinese language school. Data also supported that younger age group speak

mostly Mandarin Chinese at Chinese language school and they like to speak mandarin at Chinese school. However, this same group reported mostly liking to speak English at home. Although the oldest group reported the most English language behavior at their Chinese language school, they speak the least English at home.

Predictors of Chinese Heritage Language Behaviors

Heritage languages are usually lost by the second or third generation of immigrants in the US (Fishman, 1978; Krashen, 1996; Veltman, 1983). According to Fillmore (2000), this process seemed to be accelerating, with heritage languages more often being lost during the second generation. In many cases, immigrant background adolescents who knew how to speak their heritage language as children refused to use or to learn the language in adolescence. In the present study, 160 participants are second generation and 60 are first generation Chinese American adolescents from a mainland China background who were (re)learning Mandarin at weekend Chinese language schools.

The results of this study identified several variables to predict CHL language behaviors in different contexts, including immediate family's speaking language, extended family's speaking language, peers' speaking language, Chinese teacher's speaking language, age, age of arrival, gender, and self-perceived identity. Immediate family's speaking language (IFSL) is a significant predictor of CHL behavior across several contexts, including immediate family, extended family, and Chinese school. The more Mandarin Chinese parents used with their children, the more likely that the CHL learners spoke Mandarin Chinese with immediate family, extended family, and at Chinese school.

Extended family's speaking language (EFSL) is a significant predictor of CHL behavior within the immediate family and extended family. The more Mandarin Chinese grandparents

used with their grandchildren, the more likely that the CHL learners spoke Mandarin Chinese with immediate family and extended family. EFSL, however, is not a significant predictor of CHL behavior with peers or at Chinese school.

Peers' speaking language (PSL) is a significant predictor of CHL behavior with peers. The more Mandarin Chinese their peers used with Chinese American adolescents, the more likely that the CHL learners spoke Mandarin Chinese with their friends at Chinese school. PSL, however, is not a significant predictor of CHL behavior with immediate family, extended family or at Chinese school.

Teacher's speaking language (TSL) is a significant predictor of CHL behavior at Chinese school. The more Mandarin Chinese teachers used with their students, the more likely that the CHL learners spoke Mandarin Chinese at Chinese schools. TSL, however, is not a significant predictor of CHL behavior with immediate family, extended family, or peers.

Age is a significant predictor of CHL behavior when Chinese American adolescents are with their peers and at Chinese language school. The older the Chinese American adolescents are, the more likely that they will speak less Mandarin Chinese with their peers and at Chinese schools. Age, however, is not a significant predictor of CHL behavior when Chinese American adolescents are with their immediate family and extended family.

Younger CHL learners speak more mandarin Chinese compared to older CHL learners. This result is consistent with the observations of many CHL classroom teachers and educators (Ma, 1996; He, 2001; Cong, 2009). As a response to this phenomenon, Ma Liping Chinese focuses on listening, speaking, and recognizing, and reading. The learning of Chinese starts with recognizing Chinese characters directly, without the introduction of Pinyin to CHL learners. Ma Liping Chinese also simplified the structure of homework, including only three parts, including

recognizing characters, writing characters, and reading. As a result, CHL learners who use Ma Liping Chinese can recognize over 1500 most frequently used Chinese characters after three to four years of studying. Therefore, it prepares CHL learners to be a prolific Chinese literature readers before they reach 12 to 13 years old, the age when the majority students starts to drop out of Chinese language schools. Future researches need to be conducted to find out what the compact of different use of CHL curricula in the formation and development of CHL learner identities.

Age of arrival (AoA) is a significant predictor of CHL behavior across several contexts, including immediate family, with peers, and at Chinese school although the sample is heavily weighted towards second generation immigrants. Chinese American adolescents who arrived in the US at an older age tend to speak more Mandarin Chinese with their immediate family, peers, and Chinese teachers. The data suggested that age of arrival is a stronger predictor than age. This is consistent with Jia and Aaronson (2003) who reported that AoA in the United States is an important predictive variable of HL maintenance and attrition. Jia and Aaronson's 3-year longitudinal study documented that younger arrivals "used more English than Chinese even when they were more proficient in Chinese, and gradually shifted to English dominance in language skills. Age of arrival, however, is not a significant predictor of CHL behavior when Chinese American adolescents are with their extended family.

Gender is a significant predictor of CHL behavior when Chinese American adolescents are with their extended family. Grandparents are most likely to speak Mandarin Chinese with their grandson compared to their granddaughter. Gender, however, is not a significant predictor with immediate family, peers, or teachers at Chinese school. One possible explanation is that grandparents who are visiting their American sons and daughters for three to six months still

hold on traditional Chinese values which characterized by son preference. According to Confucian belief, one of the three grave unfilial acts is to fail to have a son (Hillier, 1988). When girls do become part of family, they are less welcome family members (Coale & Banister 1994; Johansson & Nygren 1991; Johnson 1993). Son preference affects the care received by young children. Boys received better child care, food, and health care than girls in other Asian countries characterized by son preference, including in Bangladesh, India, and Nepal (Das Gupta, 1987; Levine, 1987).

Self-perceived identity is a significant predictor of CHL behavior across several contexts, including immediate family, with peers, and at Chinese school. The more Americanized Chinese American adolescents perceived themselves, the less likely that they will speak Mandarin Chinese with their immediate family, peers, and teachers at Chinese school. Self-perceived identity does not have the same influential power in terms of affecting CHL behavior across contexts. Further explorations are needed to illustrate the different effects of self-perceived identity on CHL behavior across contexts. Self-perceived identity, however, is not a significant predictor of CHL behavior when Chinese American adolescents are with their extended family.

Conclusions

The results of this study suggest that for Chinese-American adolescents, immediate family, extended family, and Chinese school language environments have a great impact on their language behaviors. The more Mandarin Chinese their parents and grandparents used with them, the more CHL learners will speak Mandarin Chinese at home and Chinese school. The more likely their peers and teachers speak Mandarin Chinese, the more likely they speak Mandarin Chinese at Chinese school. These findings further explained participants' reasons for thinking that learning Mandarin Chinese is important. The top reason given by the participants is it is

important for communicating with their immediate and extended families and with other Chinese. This finding is aligned with He's interaction hypothesis as well as Giles' speech accommodation theory. According to He (2008), the degree of success in CHL development correlates positively with the learner's desire to communicate successfully in a moment-by-moment fashion. A very important aspect of motivation comes from the reward of communicating in situated activities, such as being able to talk to relatives or to travel independently in Chinese-speaking worlds.

The findings also suggest that although CHL schools might not meet the expectations of parents in terms of CHL learners' learning, they do meet the expectations of parents' using CHL schools as a channel to network with other Chinese American families. Ma (2006) argues that many CHL schools have become the location which provides network opportunities for CHL parents. Future researches on CHL learners' parents identities are needed to understand the formation and development of CHL learners' self-perceived identities.

Self-perceived identities are important predictors of CHL behaviors when Chinese American adolescents are in different contexts. The more Chinese American children and adolescents perceived themselves Americanized, the more English they spoke with their immediate family, peers, and teachers at Chinese language schools. Self-perceived identity, however, does not predict CHL behaviors when Chinese American adolescents speak with their extended family.

Both the students' self-reports and successful classroom practices suggested that introducing Chinese culture instead of teaching Chinese characters, sentences and grammar would be an effective way of teaching CHL. Incorporating Chinese culture in CHL teaching requires classroom teachers to be sensitive to CHL learners' self-perceived identities to select

age and culture-appropriate topics and to help student relate heritage language and culture learning to their daily life in the United States. Incorporating Chinese culture in CHL teaching also requires teachers and administrators to be sensitive to CHL learners' self-perceived identities when they select appropriate teaching and learning materials. Currently, there are two popular CHL curricular: Chinese by the Jinan University Press and Ma Liping Chinese. According to both parents and teachers, Ma Liping Chinese addresses the self-perceived identities of Chinese American adolescents more appropriate by including age and developmentally sensitive stories in the curricula (Xu, 2000; He, 2001; Zhang, 2007; Cai, 2010).

Implications

Findings from the self-perceived identities (SPI) data indicate that identity is a situated, interactively-constructed entity with SPI at American school as the biggest contributor. English-speaking heritage learners of Mandarin Chinese aged 9 to 16 years identify as more or less Chinese or American depending on whom they are talking to (e.g., American peers or grandparents) and setting (e.g., home, Chinese language school, or American public school). Therefore, it is very important for their parents to encourage their children to explore their American oriented identity at home and daily schools as a way to reduce intergenerational or intercultural conflicts.

For Chinese schools in the United States mainland, integrating Chinese cuisine culture into classroom teaching would motivate the learning interest of students as well as get communities and parents involved (Cong, 2009). Findings from the open-ended questions as well as participants' language behaviors across contexts also indicated that involving Chinese American grandparents in classroom teaching and school activities might increase the Mandarin Chinese behaviors of Chinese American adolescents.

For local school administrators as well as policy makers, integrating Chinese weekend schools into both public and private school by allowing the Chinese as heritage language learners to use the school facilities might be a good channel for parents to learn more about American mainstream culture and be more open to their children's American identity eventually. For researchers and educators, findings of this study have illustrated outlines for their major focus when they develop age and cultural sensitive CHL curricula. To be more specific, instead of Chinese historic figures and events, Chinese American adolescents with American style outfit could be the main characters; interactions with peers in daily schools, parents, grandparents, and Chinese language teachers could be part of the main body of the text contents; Chinese cuisine and history of Chinese Americans might be good topics of future curricula.

Limitations

This study was limited by several conditions. These include that 1) the participants in this study share social economic status. The sample is heavily weighted towards middle/upper middle class. 2) variables on the instruments are not all inclusive of the many variables influential to determining the language behaviors; 3) the sample is heavily weighted towards native speakers; 4) data collection was limited to paper and pencil form at the selected Chinese weekend school; therefore, participants may have entered more acceptable responses than actual true responses.

Recommendations

Additional studies are needed on Chinese as heritage language teaching and learning could include the following:

1. National surveys of Chinese as heritage language learners in weekend Chinese language schools are needed to be conducted to build the profiles of CHL learners.

2. Longitudinal studies focusing on Chinese American adolescents' self-perceived identity are needed to examine the impact of heritage language learning on the development of CHL ethnicity.
3. Cross-sectional studies are needed to test the newly developed Survey of Chinese Heritage Language Learner.

Significance

As one Chinese American parent posited (Ma, 1996), the younger generation of Chinese American do not need to develop a prosperous career relevant to Chinese language. However, they need Chinese culture to define themselves in this multiethnic melting pot. Therefore, Chinese culture not only spiritually strengthens individual Chinese American when he or she encounters a variety of cultures in the United States, but also serves as a bond getting each Chinese family as well as community together.

The existing literature has documented mixed findings of the role of identity in the development and maintain of heritage languages (Xiao, 2008). Since the majority instruments used in the previous studies is self-developed, non-validated instruments regarding to the measuring of identity and language achievements and behaviors, findings of these studies are limited in terms of generalization and comparison. Therefore, the need for valid and reliable heritage language teaching and learning research is vital. Given the scope of CHL teaching and acquisition, adequate instruments to access the cognitive/psychomotor/affective domain to plan educational interventions are even more critical. By systematically validating both identity scale and language behavior scale for the research of heritage language teaching and learning, this study contributes to the field of HL research with appropriate instruments for future studies.

Last but not the least, this study is the first attempt at applying structural equation modeling (SEM) to the research Chinese as heritage language learning and teaching. With SEM, researchers are allowed to construct latent variables which are not measured directly, but are estimated in the model from several measured variables, such as immediate family speaking language and extended family speaking language. This capability allows the modeler to explicitly capture the unreliability of measurement in the model, which in theory allows the structural relations between latent variables to be accurately estimated. Hopefully, this study might lead to more applications of SEM in both CHL theory testing and development in the recent future.

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Appendix A

AGREEMENT LETTER FROM ACCA PRINCIPAL

Institutional Review Board
c/o Office of Human Subjects Research
307 Samford Hall
Auburn University, AL 36849

Dear IRB Members,

After reviewing the proposed study, “Identity Matters: The Ethnic Identity of Chinese American Students and Their Language Preferences,” presented by Mrs. Linxiang Zhu, a graduate student at Auburn University, I have granted permission for the study to be conducted at Atlanta Contemporary Chinese Academy.

The purpose of the study is to explore Chinese as heritage language learners’ perceptions of their ethnicity and the relationships between their self-perceived ethnicity and language preferences. The primary activity will be completing enclosed surveys. Only students in the fourth, fifth, sixth, seventh, eighth, and ninth grade are eligible to participate.

I understand that data collection will occur for two to three times in *two semesters during normal classroom instruction, and during students’ regularly scheduled spelling instruction. This is a daily event, with lessons lasting from 45 to 50 minutes.* I expect that this project will end not later than May 24, 2009. Mrs. Zhu will *contact and recruit* our students and will *collect data* at Atlanta Contemporary Chinese Academy.

I understand that Mrs. Zhu will receive parental/guardian consent for all participants, and have confirmed that he has the cooperation of the classroom teachers. Mrs. Zhu has agreed to provide to my office a copy of all Auburn University IRB-approved, stamped consent documents before he recruits participants on campus. Any data collected by Mrs. Zhu will be kept confidential and will be stored *in a locked filing cabinet in her AU advisor’s office.* Mrs. Zhu has also agreed to provide to us a copy of the aggregate results from his study.

If the IRB has any concerns about the permission being granted by this letter, please contact me by e-mail (bxj4@cdc.org).

Sincerely,
Mr. Baoming Jiang, Principal
Atlanta Contemporary Chinese Academy
bxj4@cdc.gov

Appendix B

A SURVEY OF CHINESE AS HERITAGE LANGUAGE LEARNER

Educational Foundations, College of Education, Auburn University

PART I: Background/General Data Information

Please check or fill in the appropriate blanks.

1. Gender: Male Female

2. Age: 9 10 11 12 13 14 15 16 Other (Please specify) _____

3. Origin: Mainland China Hong Kong Taiwan Other (Please specify) _____

4. Father's education:

- | | |
|--|---|
| <input type="checkbox"/> Elementary school | <input type="checkbox"/> Junior high |
| <input type="checkbox"/> High school | <input type="checkbox"/> 4-year college |
| <input type="checkbox"/> Graduate or professional degree | <input type="checkbox"/> Other (please specify) _____ |

5. Mother's education:

- | | |
|--|---|
| <input type="checkbox"/> Elementary school | <input type="checkbox"/> Junior high |
| <input type="checkbox"/> High school | <input type="checkbox"/> 4-year college |
| <input type="checkbox"/> Graduate or professional degree | <input type="checkbox"/> Other (please specify) _____ |

6. Father's Occupation:

- | | |
|--|---|
| <input type="checkbox"/> Professional/managerial | <input type="checkbox"/> Service worker |
| <input type="checkbox"/> Small business owner | <input type="checkbox"/> Other (Please specify) _____ |

7. Mother's occupation:

- | | |
|--|---|
| <input type="checkbox"/> Professional/managerial | <input type="checkbox"/> Service worker |
| <input type="checkbox"/> Small business owner | <input type="checkbox"/> Other (Please specify) _____ |

8. Which language or languages did you first learn in childhood?

- | | |
|---|---|
| <input type="checkbox"/> Cantonese | <input type="checkbox"/> English |
| <input type="checkbox"/> Fuknese | <input type="checkbox"/> Mandarin Chinese / Putonghua |
| <input type="checkbox"/> Other (Please specify) _____ | |

9. If you could choose, will you continue to take Chinese classes at a Chinese school?

Yes

No

10. What generation are you?

1st generation = I was born in a country other than U.S.

2nd generation = I was born in U.S., either parent was born in Asia or country other than U.S.

3rd generation = I was born in U.S., both parents were born in U.S., and all grandparents born in Asia or country other than U.S.

4th generation = I was born in U.S., both parents were born in U.S., and at least one grandparent born in Asia or country other than U.S. and one grandparent born in U.S.

5th generation = I was born in U.S., both parents were born in U.S., and all grandparents also born in U.S.

Don't know what generation best fits since I lack some information.

11. If you are a 1st generation, how old were you when you arrived in the United States? _____

12. How well can you speak Mandarin Chinese?

I cannot speak Mandarin Chinese

My Mandarin Chinese is good enough to describe a familiar experience or event in simple terms

My Mandarin Chinese is good enough to conduct a conversation on a variety of personal and academic topics

My Mandarin Chinese is good enough to communicate with overall accuracy, clarity and precision

Native fluency

13. How well can you speak English?

My English is good enough to describe a familiar experience or event in simple terms

My English is good enough to for me to study at an American school

My English is good enough to conduct a conversation on a variety of personal and academic topics

My English is good enough to communicate with overall accuracy, clarity and precision

Native fluency

14. Who are your friends at the American school?

- | | |
|--|---|
| <input type="checkbox"/> Chinese born only | <input type="checkbox"/> Chinese born and American born Chinese |
| <input type="checkbox"/> Asian American only | <input type="checkbox"/> Asian American and European American |
| <input type="checkbox"/> Non-Asian American | |

PART II: Self-Perceived Ethnic Identity

Please choose the category which best describe you, your parents, and your friends. For example, if you think the way you dress is mostly Chinese, you will circle 2 for item 1.

	Very Chinese	Mostly Chinese	Chinese American	Mostly Americanized	Very Americanized
	1	2	3	4	5
1	How do you dress?				1 2 3 4 5
2	How do you eat (Knife and fork or chopsticks)?				1 2 3 4 5
3	What do you eat?				1 2 3 4 5
4	How do you prefer to dress?				1 2 3 4 5
5	What kind of food do you prefer to eat?				1 2 3 4 5
6	How do you perceive your size (height and weight)?				1 2 3 4 5
7	How would you describe yourself at home?				1 2 3 4 5
8	How would you describe yourself at Chinese school?				1 2 3 4 5
9	How would you describe yourself at daily school?				1 2 3 4 5

PART III: Language Behavior and Preferences

Please choose which best describe the language preference and behaviors of you, your family and friends on the following scale. NA means not applicable. For example, if you do not have a sibling, you will circle NA for item 9.

	Almost or Always Chinese 1	More Chinese than English 2	Balanced Use of Chinese & English 3	More English than Chinese 4	Almost or always English 5
1	What language(s) do you speak at home?			NA	1 2 3 4 5
2	What language(s) do you speak at Chinese school?			NA	1 2 3 4 5
3	What language(s) do you prefer to speak at home?			NA	1 2 3 4 5
4	What language(s) do you prefer to speak at your Chinese school?			NA	1 2 3 4 5
5	What language(s) do you speak with your mother?			NA	1 2 3 4 5
6	What language(s) do you speak with your father?			NA	1 2 3 4 5
7	What language(s) do you speak with your siblings?			NA	1 2 3 4 5
8	What language(s) do you speak with your grandmother?			NA	1 2 3 4 5
9	What language(s) do you speak with your grandfather?			NA	1 2 3 4 5
10	What language(s) do you speak with your best friend(s) at Chinese school?			NA	1 2 3 4 5
11	What language(s) do you speak with your other friends at Chinese school?			NA	1 2 3 4 5
12	What language(s) do you speak with your teacher at Chinese school?				
13	What language(s) does your mother speak at home?			NA	1 2 3 4 5
14	What language(s) does your father speak at home?			NA	1 2 3 4 5
15	What language(s) does/do your sibling(s) speak at home?			NA	1 2 3 4 5
16	What language(s) do your grandmother speak at home?			NA	1 2 3 4 5
17	What language(s) does your grandfather speak at home?			NA	1 2 3 4 5
18	What language(s) do your best friends speak at Chinese school?			NA	1 2 3 4 5
19	What language(s) do your other friends speak at Chinese school?			NA	1 2 3 4 5
20	What language(s) does your Chinese language teacher speak at class?			NA	1 2 3 4 5

PART IV: SHORT ANSWER QUESTIONS: Please answer one of the two topics based on your experiences.

1. If you think learning Mandarin Chinese is important to you, please explain why.

2. If you think learning Mandarin Chinese is not important to you, please explain why.

Thank you for your participating in this survey!

Appendix C

DEMOGRAPHIC CHARACTERISTICS OF CHINESE AMERICAN ADOLESCENTS (9–16 AGE GROUP)

Characteristics	n	%
Age	224	
9	22	9.8%
10	29	12.9%
11	32	14.3%
12	29	12.9%
13	40	17.9%
14	34	15.2%
15	24	10.7%
16	11	4.9%
17	3	1.3%
Gender	224	
Male	95	42.4%
Female	128	57.1%
Father's Education	203	
Elementary School	4	2.0%
Junior high	5	2.5%
High school	1	.5%
4-year college	47	23.2%
Graduate school	146	71.9%

Appendix C (continued)

Characteristics	n	%
Father's Occupation	197	
Home		11.5%
Service Worker	31	15.7%
Small Business Owner	40	20.3%
Professional	123	62.4%
Mother's Education	198	
Elementary school	2	1.0%
Junior high	7	3.5%
High school	20	10.1%
4-year college	48	24.2%
Graduate school	121	54.0%
Mother's Occupation	194	
Home	25	12.9%
Service Worker	54	27.8%
Small Business Owner	26	13.4%
Professional	89	45.9%
First Language	219	
Cantonese	18	8.2%
Mandarin	87	39.7%
English	56	25.6%
Mandarin and English	46	21.0%
Other	12	5.5%

Appendix C (continued)

Characteristics	n	%
Generation	223	
1 st generation	60	26.9%
2 nd generation	157	70.4%
Other	6	2.6%
Origin	203	
Mainland China	175	86.2%
Other	28	13.8%
Age Arrived in US	210	
Born in US	158	75.2%
1–5 years old	37	17.7%
6–12	15	6.2%
Mandarin Chinese Fluency	22	
Cannot Speak	9	4.0%
Good enough to describe a familiar experience in simple terms	56	25.0%
Good enough to conduct a conversation on a variety of topics	71	31.7%
Good enough to communicate with overall accuracy	48	21.4%
Native fluency	26	11.6%
System missing	14	0.9%

Appendix C (continued)

Characteristics	n	%
Continued to take Chinese	218	
Yes	133	61.0%
No	83	38.1%
Maybe	2	0.9%
English Fluency		
Cannot speak	1	0.4%
Good enough to describe a familiar experience in simple terms	6	2.7%
Good enough to conduct a conversation on a variety of topics	8	3.6%
Good enough to communicate with overall accuracy	35	15.6%
Native fluency	172	76.8%
System missing	2	0.9%
Valid N (listwise)	143	

Appendix D

CHINESE AMERICAN ADOLESCENTS' SELF-PERCEIVED IDENTITIES AT DAILY SCHOOL, CHINESE SCHOOL, AND HOME

Variables	N	%	Mean	S.D.
How do you identify yourself at your daily school?	221		4.19	.891
Very Chinese	1	0.5		
Mostly Chinese	5	2.3		
Chinese American	39	17.6		
Mostly Americanized	76	34.4		
Very Americanized	99	44.8		
How do you identify yourself at Chinese language school?	219		3.11	1.186
Very Chinese	14	6.5		
Mostly Chinese	58	26.5		
Chinese American	71	32.4		
Mostly Americanized	38	17.4		
Very Americanized	37	16.9		
How do you identify yourself at home?	221		3.11	1.128
Very Chinese	18	8.1		
Mostly Chinese	39	17.6		
Chinese American	90	40.7		
Mostly Americanized	43	19.5		
Very Americanized	30	13.6		
General Identity	207		3.27	.718
Very Chinese	0	0		
Mostly Chinese	19	9.7		
Chinese American	120	57.9		
Mostly Americanized	55	23.2		
Very Americanized	12	5.8		